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The Dilemmas of Natural Birth Control

• Victor Cox Pedersen, M.D., F.A.C.S., New York, N. Y.

NATURAL birth control will not succeed fully until its problems are correctly solved. The chief three are written records, menstrual cycle tables and modern knowledge of the physiology and endocrinology of the mentsrual cycle without and with pregnancy.

The first problem is that of written records. Generalizations by physicians and memory of patients always lead to trouble and must be discountenanced. The memory of no woman can be trusted in so important a matter as the *days* of ovulation and the *days* of fertility in which an error by her of a day or two or even a few hours may underlie an unexpected pregnancy. Hence a printed chart must be provided and the physician should refuse responsibility until it is submitted covering at least eight months and embracing at least the *days* of the cycle each month, the hours of onset and ending of the menses and *special features* during each flow. It must be remembered that one of the greatest services to the medical profession by Knaus and Ogino is the demonstration that the cycle is in *days*, not *weeks*. Records on a weekly basis are useless. Elsewhere[1] I have discussed more at length and in detail the making, keeping and interpreting of charts. Table I shows a very serviceable form which a woman will quickly learn to keep.

Any woman who can cook by the clock and according to recipes, nurse her baby at set times, modify milk for bottle-feeding of her baby and prepare diets from a nutrition chart for her children and observe their general health regularly will also report her functions on the chart after a little patient instruction. Her own unguided efforts are caricatures. Compliance with instructions in these more difficult matters is a common experience. Hence compliance with instruction about written menstruation charts will become equally a matter of common experience. The subdivisions of this chart are self-explanatory. The section for special features should provide twice or thrice the space shown.

The following directions are serviceable:

1. The woman should mark with a black line the length of her menstruation *from* the first day *through* the last day. One such black line is drawn in, as an example, extending from January 1st through January 5th. If a menstruation extends *from* the last few days of one month *through* the first few days of the next month, then the black line must be correctly divided between the two months. In illustration, *from* July 31st *through* August 4th, is shown. This count *from* the *first through* the *last* day of any menstruation or period of fertility or sterility is the only one the woman should use.
2. The names of the month occupy the next column, in the center of chart.
3. The hours of beginning and ending of the flow are entered in the next column.
4. Menstrual and other irregularities and peculiarities are to be noted in the extreme right hand column on the line devoted to the month in which they occur. If more space is required the back of the form may be used.
5. As a rule a very few words like "bad fright," "sudden death," are enough in order to explain possible causes of any change.
6. With items 1, 2 and 3 carefully entered by the woman, the fertile days will be easily computed and can be indicated by a dotted line extending through the squares representing the days involved, thus: .....
7. Intercourses had best be entered on the chart with crosses—X.

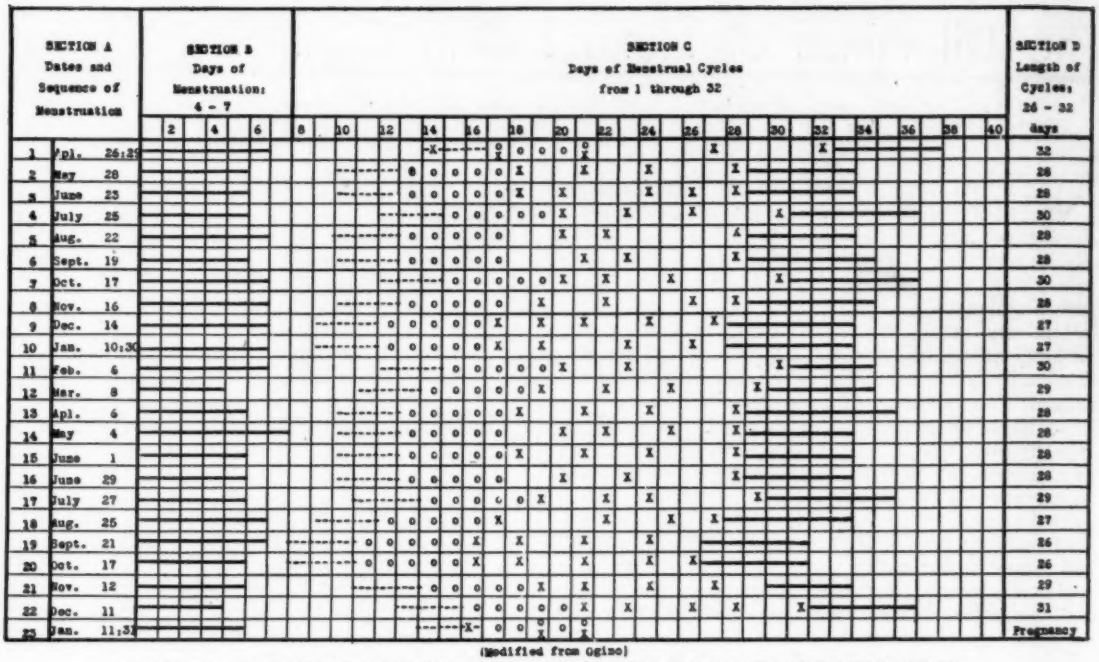
The second problem of natural birth control is the interpretation of the record when presented. Table II shows the whole story of record and interpretation.

A complete record is a lesson in itself, so that any woman may visualize what her report must contain. Table II covers twenty-three menstrual cycles and is modified from Ogino.[2] The title of each section is self-explanatory. The heavy horizontal lines cover the days of menstruation.

The menstruation beginning any cycle is at the left and that following its termination is at the right on the same line. This is Ogino's point of showing in this case the cycle as embraced between two completely depicted menstruations. By this plan the menstruation at the right appears at the left for the next following period throughout the table. Ogino's five days of ovulation are marked with o's and his additional three days with dots to complete his

DAYS OF MONTH																															Name of Month	Hour of Day of the		Record of Irregularities and Peculiarities and Causes. Essentials should be stated. Additional matter on the back of this Table.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		Onset	Ending	
																															Jan.			
																															Feb.			
																															Mar.			
																															April			
																															May			
																															June			
																															July			
																															Aug.			
																															Sept.			
																															Oct.			
																															Nov.			
																															Dec.			

TABLE I.—A FORM FOR THE WOMAN'S OWN RECORD OF MENSTRUATION AND INTERCOURSE.



	SECTION A Dates and Sequence of Menstruation		SECTION D Length of Cycles: 26 - 32 days
1	Apl.	26;29	32
2	May	28	28
3	June	23	28
4	July	25	30
5	Aug.	22	28
6	Sept.	19	28
7	Oct.	17	30
8	Nov.	16	28
9	Dec.	14	27
10	Jan.	10;30	27
11	Feb.	6	30
12	Mar.	8	29
13	Apl.	6	28
14	May	4	28
15	June	1	28
16	June	29	28
17	July	27	29
18	Aug.	25	27
19	Sept.	21	26
20	Oct.	17	26
21	Nov.	12	29
22	Dec.	11	31
23	Jan.	11;31	Pregnancy

SECTION B: Days of Menstruation: 4 - 7

SECTION C: Days of Menstrual Cycles from 1 through 32

(Modified from Ogino)

TABLE II.—CASE RECORD SHOWING ALL DETAILS FOR STUDY AND INTERPRETATION.

eight days of fertility. Sexual unions are stated with X's. This record therefore contains every point the physician must know for giving instructions and is a model of care. Disobedience as to intercourses during the fertile period did not result in pregnancy in April, 1929, but did so in January, 1931. Because this woman had had six previous pregnancies intercourse was forbidden during the days of possible fertility between menstruation and the modern eight days of fertility. That teaching, accepted in 1929, is now abandoned so that all the days preceding the eight fertile days are now fixed as sterile, except in very irregular cases with variations of many days. Such cases are very rare.

The number and frequency of intercourses is normal. Most noteworthy are the many sterile unions on days next after ovulation and next before the oncoming menstruation. The teaching of ten years ago was that the latter days are very fertile. We now know they are absolutely sterile.

The great dilemma of the physician in applying natural birth control is a table suitable to women: (a) unobservant of the periodicity and regularity of menstruation, (b) observant of them, (c) reasonably regular in them, and (d) definitely irregular in them. Groups (c) and (d) cannot be defined until records are kept as already shown in the description of Table II.

Table III is a fine working basis for all four groups during the first year of making records. Section A contains the cycles from 21 to 40 days. Section B in each frame shows each complete cycle *from* the first day of its initial menstruation *to* the first day of its subsequent menstruation, and each black line indicates the first day of the preceding and following menstruations.

The woman finds her cycle in Section A and then reads off its periods in Section B, noting exactly the points in Titles I, II and III, following. The commonest cycles are the 26, 27, 28, 29 and 30-day type, and are set off between heavy horizontal lines.

I. *The Fertile Periods of the Table*

(a) Knaus' *five days of ovulation* are printed in o's. The heavy face capital O, heavily underscored, shows the accepted day of ovulation (the fifteenth day before the onset of the next menstruation). The small letters o, three before and one after it, are the days he allows for variations in physiology.

Thus for the regular 28-day cycle ovulation extends *from* the 11th *through* the 15th day *after the first day of the preceding menstruation. These five days may fittingly be called the days of positive fertility. Conception always occurs during them sooner or later.*

(b) Ogino's *five days of ovulation* extend *from* the twelfth *through* the sixteenth day *before* the next menstruation, including therefore the ovulation day of Knaus (O) and one day before and two after it (o).

Ogino adds three days preceding his five ovulation days and thus constructs his *eight days of probable fertility. Conception occurs very commonly during these three days but less so than during the ovulation days.* The numerals in italics in each cycle of Section B are these days added to the five ovulation days of Knaus. Thus in the regular 28-day cycle Ogino's fertile period extends *from* the 10th *through* the 17th day (total 8 days) *after* the first day of the *last* menstruation.

A. This table therefore shows:

(a) for the reasonably regular woman the eight days of Ogino as her *period of probable fertility.*

(b) for the woman with records of definite regularity the five ovulation days of Knaus or Ogino as her *period of positive fertility.*

B. This table furthermore contains:

a guide for the *irregular woman* and the *woman unobservant of her habits.*

Such women require three days preceding and one day following the *eight days of probable* fertility of Ogino. They are indicated in Section B by dotted lines. Thus in the *irregular* 28-day cycle the fertile period runs *from* the

7th *through* the 18th day (total 12 days) *after* the first day of the *last* menstruation.

These twelve days equal the age-old Jewish days of separation and are not a hardship. Certainly reasonable couples will gladly maintain this degree of self-control while the records of one year are being written. Such records will tend to reduce these twelve days materially.

II. *The Sterile Periods of the Table*

All days not embraced in any of the foregoing tabulations are the periods of *absolute sterility* in each cycle.

III. *The Shortest Cycles of the Table*

When reduced to records the cycles of 21, 22, 23 and 24 days are rare. The fourteen full days beginning with the day after ovulation and ending with the first day of the next menstruation are not changed in these cycles, according to Knaus. Hence the days of possible fertility seemingly include the last few days of menstruation. This means that these extra days preceding the *indicated fertile* period do not exist in these short cycles. It does not mean that the menstrual periods of these women are fertile. *Conception is impossible during menstruation in all women.*

Women who have a *constant* variation of four days in their cycles are another dilemma for the physician. Table IV is modified from Smulders[3]

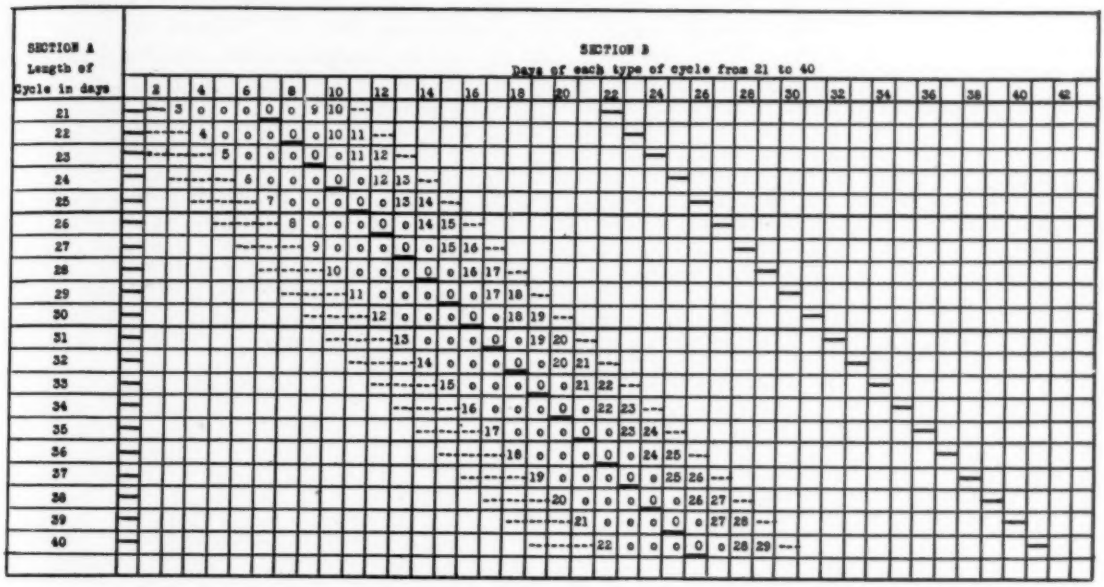


TABLE III.—THE FERTILE AND STERILE PERIODS IN MENSTRUAL CYCLES OF 21 TO 40 DAYS' DURATION (REGULAR AND IRREGULAR TYPES), KNAUS AND OGINO METHODS COMBINED.

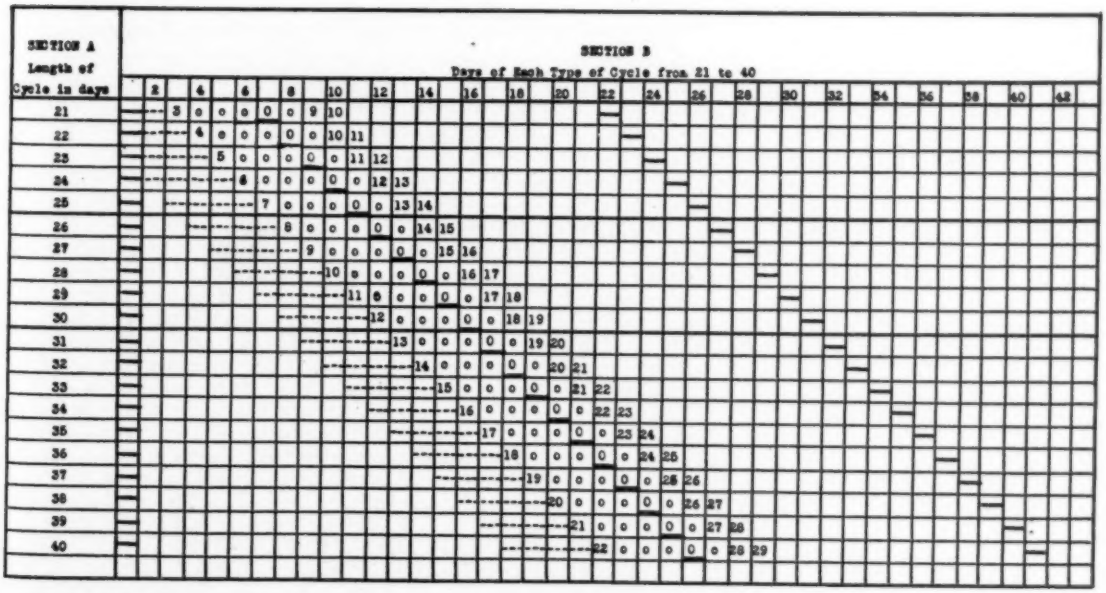


TABLE IV.—THE FERTILE AND STERILE PERIODS OF THE FOUR-DAY VARIATION MENSTRUAL CYCLES OF 21 TO 40 DAYS' DURATION (REGULAR TYPE), KNAUS. OGINO AND SMULDERS METHODS COMBINED.

and is a satisfactory index. As a demonstration of the close relation between them the table combines the methods of Knaus, Ogino and Smulders. It contains all the features of Table III except the three days preceding the *eight* days of *probable fertility of Ogino*, and the *one* day following them, which apply to the variably irregular cases.

It must be remembered that for cycles with variations of several days, ovulation occurs on any of the days in the time between the ovulation of the shortest cycle and the ovulation of the longest cycle. *Such determinations require at least twelve complete monthly records*, for the first judgment, and several other such records for final judgments.

The Smulders method marks on Table IV the full fertile period of the longer cycle of the woman, say 32 days, which will be *from* the 14th *through* the 21st day counting from the *first* day of the *last* menstruation. It then marks backward the four days of constant variation, thus including the 10th day, which is the first day of fertility of the 28-day cycle, in her 28-32 day habit.

The woman's days of *definite* variation are charted in this way even if they are two, three, four or more. As she increases the number of accurate records the limits of fertility will be more accurate.

A. For the *regular cases* the four days of constant variation are prefixed to Ogino's eight days up to the short cycles of 21, 22, 23 and 24 days which of course cannot fall precisely within this presentation. In these cases none of Smulders' four days can be inserted.

Therefore a regular 28-32-day cycle will have a fertile period *from* the 10th *through* the 21st day (total 12 days) after the first day of the last menstruation.

B. For the *irregular cases* (28-32-day cycles as one example) the ovulation days are increased by the four days: two (preceding) for the life of the spermatozoon, one (preceding) and one (following) for variations in the ovulation itself, exactly as in Table III, except that *all four* days are prefixed to Ogino's eight days.

Therefore an irregular 28-32-day cycle will have a fertile period *from* the 6th *through* the 21st day (total 16 days) *after* the first day of the last menstruation, if the irregularity is as much as four days. In other words, given a woman who, while usually having a constant variation of four days, has a day or two *added*, then this variation must be prefixed to the four days, making an increase of six days to her fertile period of her longer cycle, say 32 days.

As in Table III when the records of one or several years are completed it may be feasible to use only the five days of ovulation with the days of variation preceding. This appears to be the direct tendency of the later teachings of Knaus, that his five days of ovulation are finalities. Only time can settle so moot a point, by interpreting many careful year-long records.

It is hoped that the reader will see that advancing knowledge as to natural processes in woman will surely increase the accuracy and satisfaction of following those processes in birth control. In five to ten years hence the present doubts will be settled within all reasonable demand.

The last dilemma of natural birth control is the general absence of knowledge of the physiology and endocrinology of ovulation, pregnancy and parturition. The older physicians still think of the menstrual cycle in *weeks*, not *days*. They also think of the uterine mucosa as in the same state during the menstrual and intermenstrual periods and as hyperemic in the membrane and hemorrhagic beneath its epithelium with consequent menstrual bleeding and as finally terminating with restoration to normal mucous membrane.

The ovary in its ovulation and corpus luteum formation and the uterus in its mucosa and muscularis pass through very similar and closely related phases denoted by identical terms.

The general source of this activity is the production by the anterior lobe of the pituitary gland of two hormones, a follicle-stimulating and a luteinstimulating factor. The Graafian follicle ripens and secretes its own harmone, *folliculin*, by the action of the follicle-stimulating factor. The corpus luteum is formed and its functions are controlled by the lutein-stimulating factor. The nature, source, excitant and control of these endocrines of the interior pituitary and their functions do not seem to be proved up to the present, although the endocrines themselves exist beyond reasonable doubt.

The menstrual cycle is, however, now divided into two equal or nearly equal parts, and four phases. In the first half-period *proliferation* occurs and in the second half-cycle *secretion* appears during which either *implantation* of the fertilized ovum happens (decidua) or *desquamation* with *regeneration* (menstruation) follows.

The uterine mucularis conforms to mucosal proliferation by increased activity through *folliculin* and by increased response to *pituitrin*. Conversely during mucosal secretion *progesterone* decreases this response to pituitrin, while it increases the secretion phase itself.

The Graafian follicle ripens, discharges the matured ovum and the corpus luteum begins to develop by the three stages: *proliferation* from the sixteenth to the twelfth day; *vascularization* from the fifteenth to the eighth day, and *hematization* from the eleventh to the first day. *Atrophy* and *cicatrization* terminate the corpus luteum directly before menstruation. During all these phases of ovarian function the corpus luteum checks further ovulation until in its turn it atrophies and cicatrizes. Cicatrization as such is the terminal healing of the corpus luteum and, like any other healing, it possesses no endocrine action.

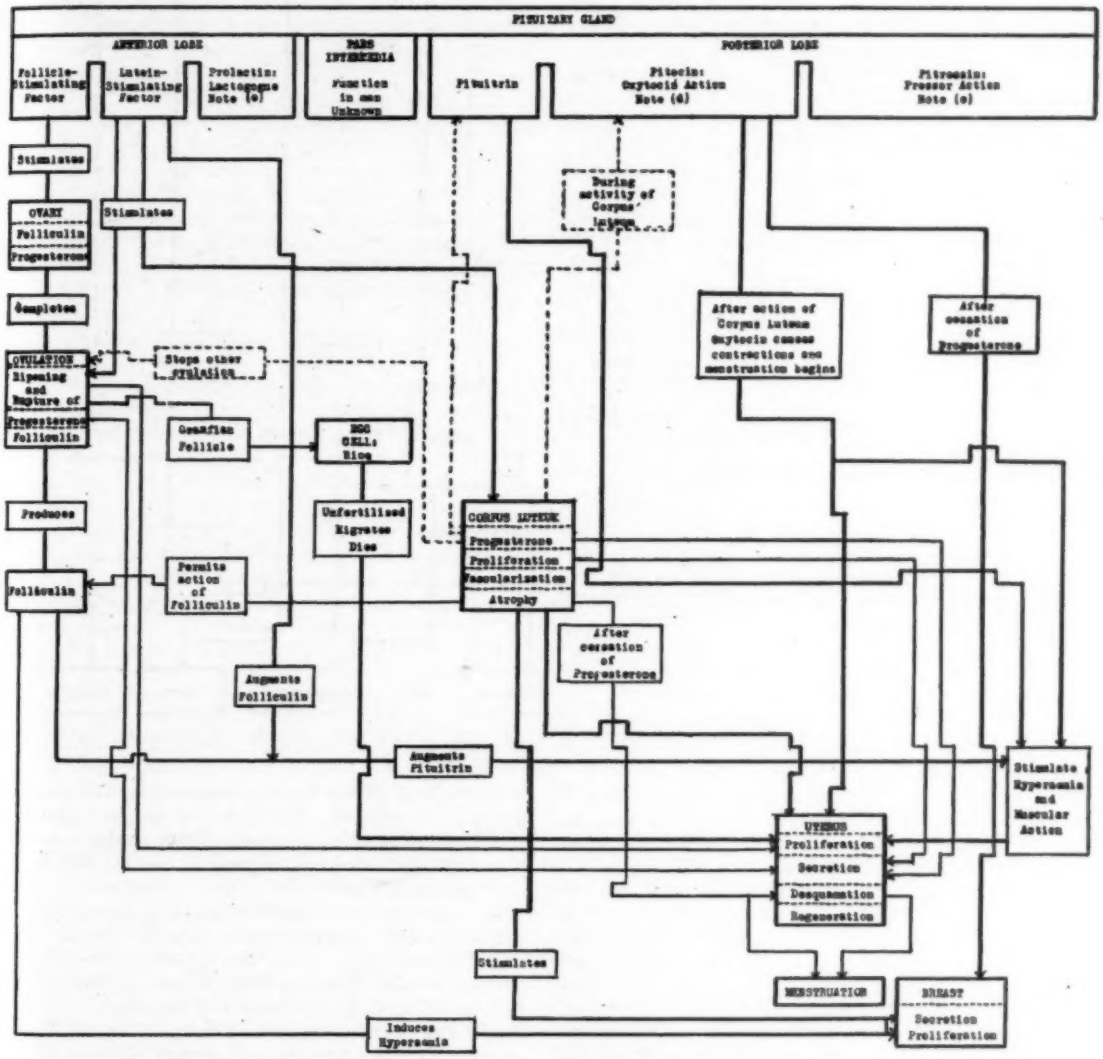
The mucosal phases of the uterus agree with those of ovulation. Ripening of the follicle occurs during proliferation and corpus luteum formation accompanies secretion. Degeneration of the follicle, and desquamation with regeneration of the mucosa, all appear together. These cyclic relations are maintained by the regular secretion within the follicle of its sexual hormone (*folliculin*) and by the continued development within the corpus luteum of its hormone, called *progesterone*. The periodicity of *folliculin* itself comprises its increase during the ripening of the follicle, its greatest supply during the formation phase of the corpus luteum and its cessation during the regeneration phase of the corpus. *Progesterone* is the hormone directly inducing the secretion phase of the uterine mucosa, as already stated.

It will be recognized that the close relations so briefly sketched mean these facts. Without ovulation there is no corpus luteum, and without the

corpus luteum there is no premenstrual mucosa and without the premenstrual mucosa there is no menstruation. The premenstrual mucosa is the *secretion* phase, already described, and becomes either the *decidua,* if pregnancy begins, or the *desquamation* and *regeneration* phases of the mucosa (menstruation as such), if pregnancy does not occur. This is a long statement of the fact that menstruation is "a disappointed pregnancy" or "the abortion of an unfertilized egg-cell." *Whereas monkeys in physiological health are known to have both ovulatory and nonovulatory cycles, Ogino states that in woman menstruation without ovulation occurs only pathologically, namely, in polycystic degeneration and follicle persistency.* Because the corpus luteum chiefly if not entirely induces the secretion or premenstrual phase of the endometrium and because when the corpus luteum atrophies this phase ceases and menstruation begins, it is reasonably certain that the corpus luteum in its activity and atrophy determines menstruation as such.

The accompanying graphs are designed to make the physiology and endocrinology of ovulation and pregnancy perfectly clear after careful study.

Of course all graphs include only accepted facts and exclude controversial facts. That which may be

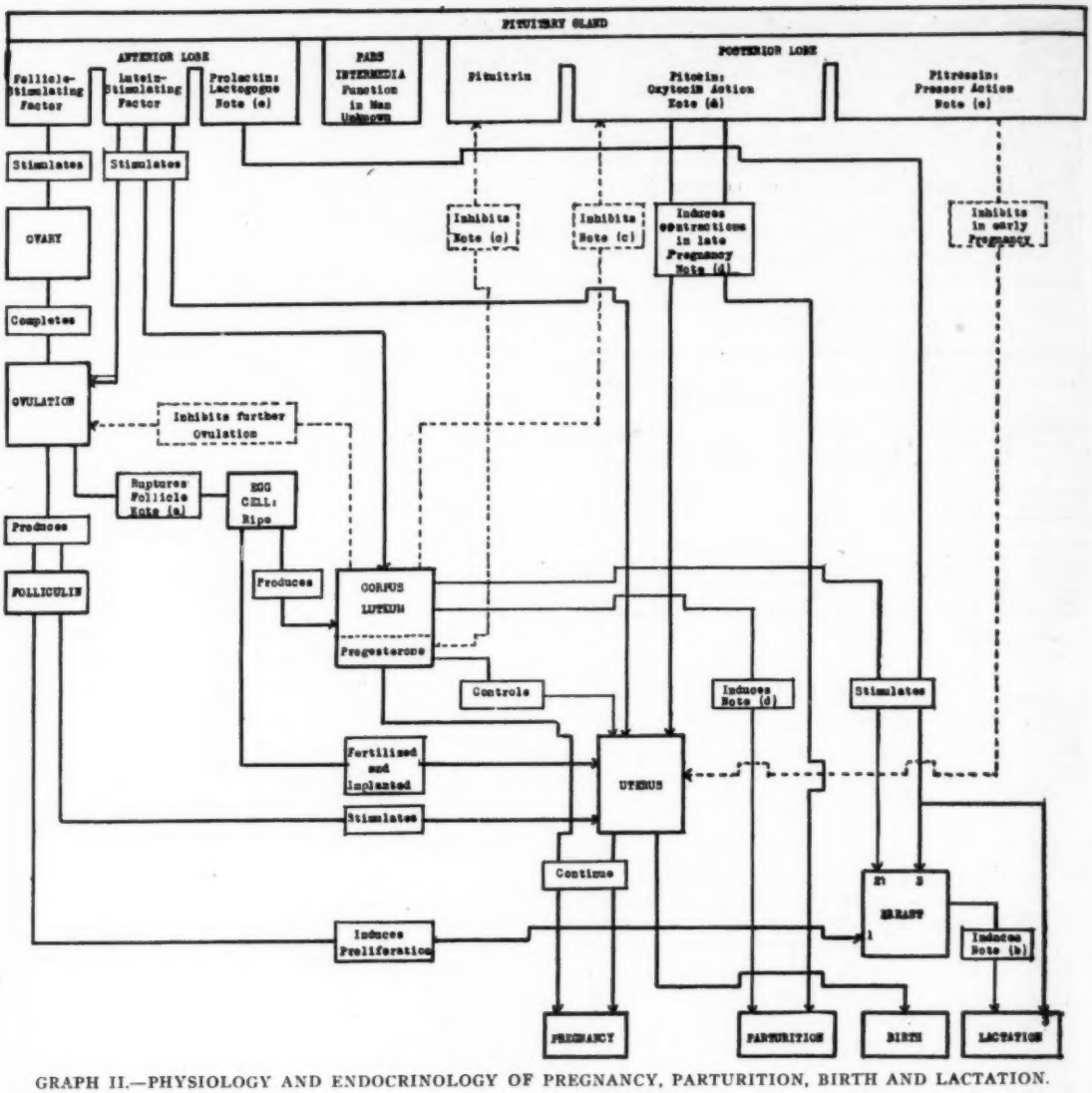


GRAPH I.—PHYSIOLOGY AND ENDOCRINOLOGY OF OVULATION AND MENSTRUATION.

NOTES

These points apply to both graphs and like the graphs themselves are only explanatory indices of knowledge as it is generally accepted today. They are subject to change at any time, sooner or later.

Note (a): Knaus states that *biologically* rupture occurs on the 15th day before the next menses. *Note (b):* After corpus luteum ceases its activity. *Note (c):* During the activity of corpus luteum. *Note (d):* After corpus luteum ceases activity oxytocin resumes its action. When pregnancy is present parturition begins. *Note (e):* In ovulation and menstruation prolactin and pitressin are without material influence.



GRAPH II.—PHYSIOLOGY AND ENDOCRINOLOGY OF PREGNANCY, PARTURITION, BIRTH AND LACTATION.

(See footnotes page 105)

very properly part of them at the present time will be very improperly so in another time in the near or remote future. These are the realizations with which these graphs have been prepared.

The following general limitations must be remembered. Several leading investigators assert that there is inadequate evidence of pituitrin production by the pars intermedia *in man*. In that circumstance pituitrin is the product of only the posterior lobe *in man*, as shown in the graphs.

Pituitrin is a definite endocrine entity or factor. It is *not* a product or an extract of the whole gland, as some authors seem to use the term. Solution of the pituitary as an extract is often that of the posterior lobe containing unfractioned pitocin and pitressin. This term is still being used for therapeutic and more or less commercial preparations. This use is a very great misfortune because it is so confusing.

Pitocin and pitressin have been well worked out and prolactin is rather fully established but two separate and distinct gonad-stimulating factors in the anterior pituitary lobe have not yet been demonstrated or generally accepted. Their presence is not a proved fact as yet, although it is a possible or even probable fact.

In ovulation and menstruation, as a nonfertile cycle, pitocin, pitressin and prolactin are without material influence but no single endocrine chain is known which controls ovulation and menstruation. Furthermore it is not known what rôle is played by the vasopressor factor of the posterior lobe in the bleeding of menstruation. Hartman and his group have abandoned the theory that, in monkeys, a hormone of the anterior lobe induces menstruation. He is now looking toward the posterior lobe for it.

Both graphs share these features. Heavy lines set off squares for the important organs and their endocrine or physiological actions. Heavy lines or bonds start from the squares representing the en-

(Concluded on page 117)

The Mechanism and Treatment of Cardiac Edema

•J. Hamilton Crawford, M.D., F.A.C.P., Brooklyn, N. Y.

THE problem of edema is extremely complex but well merits a thorough study as it is a sign of such grave import in heart disease. Recently much has been done to elucidate the mechanism by which it is produced. In any physical state a thorough understanding of the underlying causes of the condition is an essential preliminary to adequate therapeutics. Before considering cardiac edema *per se* it is desirable to review first the factors concerned in the water balance between tissues and blood and to study in what way these are modified in heart disease.

In order to explain the equilibrium which exists normally between the blood and the tissue fluid Starling (1) advanced the hypothesis that the capillary pressure and the osmotic pressure of the plasma protein, to which the capillary wall is normally almost impermeable, were the main factors concerned. The former favors filtration and the latter has the opposite effect. The crystalloid elements of the blood, such as sodium chloride, play no part as they can permeate the capillary wall freely and hence exert no osmotic pressure in the capillary.

Capillary Pressure. The capillary pressure is of prime importance. Levy (2) and Dale and Richards (3) postulated that there was a gradual fall of pressure in the capillary from the arteriolar to the venous limb. The micro-injection methods of Landis (4) proved such to be the case. He found in the frog that the pressure in the arterial limb was 14 cm. of water while that in the venous was 10 cm. of water, the osmotic pressure of the plasma protein being about 11 cm. of water. When the arterial pressure was above 11 cm. of water fluid was filtered from the blood and when below this it was absorbed into the capillary. His results in man (5) showed that the arterial capillary pressure was on the average 45 cm. of water and the venous 22 cm. of water. The osmotic pressure of the protein in man varies from 21 to 29 cm. of water. A similar relationship t:us exists as in the frog.

Venous Pressure. It is well known that an increase in venous pressure increases capillary pressure. The work of Drury and Jones (6) and of Landis and his coworkers (7) has clearly demonstrated that the degree of filtration from the capillaries is, within certain limits, proportional to the height of the venous pressure. The venous and capillary pressures always are elevated in congestive heart failure with edema. The early appearance of ankle edema in heart disease may be explained by the general rise in venous and capillary pressures added to the normally higher pressures in this region.

Osmotic Pressure of Plasma Protein. The second factor which Starling stipulated was the osmotic pressure of the plasma protein. That this is an important factor in the production of certain types of edema is shown by the presence of a low plasma percentage in certain diseases associated with edema, *i. e.,* nephrosis. Leiter (8) found that chronic hypoproteinemia produced by plasmaphoresis led to frank edema when the plasma protein fell below 3%, thus reducing considerably the effective osmotic pressure of the blood. Plasma protein values in this range are frequently found in patients suffering from nephrosis. Fahr and Kerhof (9) demonstrated that the substitution of acacia for protein prevented edema in hypoproteinemia induced by plasmaphoresis, thus proving that the cause was a lowering of osmotic pressure and not a peculiar property of protein. Krogh, Landis and Turner (7) studied in normal individuals the effect on fluid movement of changes in the osmotic pressure of the blood and showed that a rise in osmotic pressure was followed by diminished filtration.

There is considerable debate as to the degree to which protein passes through the capillary wall. The majority of investigators believe that about 95% is retained except when the venous pressure is very high. This is supported by the fact that the protein content of edema fluid and transudates into serous cavities reveals a low percentage of protein. Drinker and his associates (10), as a result of their studies on lymph, consider that the capillary wall is more permeable to protein than others have found. They believe when there is little time for reabsorption of fluid, as in muscular exercise, that lymph closely represents the fluid filtered through the capillary. Even under these circumstances there was a larger percentage of protein than others consider that normal tissue fluid contains. The present consensus of opinion is that almost all of the protein fails to pass the capillary wall and consequently acts to retain or reabsorb fluid into the capillary.

The level of plasma protein shows considerable variation in congestive heart failure with edema but there is no evidence that it is as a rule important in the production of the condition.

Tissue Metabolites. The accumulation of metabolites in the tissues has been shown to have a definite bearing on the movement of fluid through the capillary walls. Barcroft and Kato (11) calculated that in contracting muscle, blood loses fluid at a rate of 2 cc. per minute per hundred grams of functioning tissue. Landis and Gibbons (12) found that a venous pressure of 80 cm. of water caused fluid to accumulate in the tissue spaces at a rate of 0.20 cc. per minute per hundred grams of tissue. There is, therefore, a considerable increase during exercise. Barcroft and Kato concluded that this was due to both elevation of the osmotic pressure in the tissue fluid and to vasodilatation and increased capillary pressures. These changes are extremely important in the development of edema in heart disease. In the early stages edema only develops after exercise and is relieved by rest. Fur-

From the Department of Physiology and Pharmacology and the Department of Medicine of the Long Island College of Medicine, Brooklyn, N. Y.

thermore, pre-existing edema, even at rest, is always increased by muscular activity.

Anoxemia. No definite evidence exists that the accumulation of carbon dioxide in the blood alters capillary permeability. However, the work of Bolton (13) suggests that long continued mild anoxemia increases it. This state is present in congestive heart failure. It may produce its action by increased tissue osmotic pressure resulting from the anoxemic breakdown of cellular material into substances of low molecular weight.

Electrolytes. Considerable difference of opinion exists as to the rôle of electrolytes accumulating in the tissue spaces in the production of edema. Widal and his coworkers (14) and Strauss (15) stressed the part played by sodium chloride in this respect. At first it was believed that the chloride ion was responsible for the action, but the study of Blum and his associates (16) has demonstrated that the sodium ion is the important one, as sodium bicarbonate can also increase edema. Magnus-Levy (17) showed that potassium and calcium chloride did not have this effect. There is no evidence that an increase of nitrogenous products in the tissues plays any part in the production of edema. One may conclude that substances which penetrate freely into cells and tissues play no part in edema formation but that an accumulation in the tissue spaces of those ions which enter the cells with difficulty or not at all may upset the osmotic pressure so that fluid is retained. Except when there is an excessive ingestion of sodium chloride it is questionable if this is a factor of much importance in the development of cardiac edema but it clearly indicates that during treatment the intake of this substance should be reduced as any factor which tends to produce retention of fluid assumes great importance.

Temperature. It is well recognized that the formation of edema is usually greater in warm weather. Drury and Jones (6) and Landis and Gibbons (12) have shown that at a constant venous pressure filtration is greatly increased by raising the temperature even when no injury is caused to the capillary wall. This is the result of capillary dilatation and increased capillary pressure. As a rule edema in patients with heart disease accumulates more rapidly during warm weather.

Tissue Pressure. When the capillary pressure is elevated over long periods of time it seems that a further factor must play a part in the rate at which edema fluid collects. Otherwise in a comparatively short time it would increase to such an extent that the individual would drown in his own tissue fluid. It is agreed that edema fluid collects in the tissue spaces and that intracellular increase in fluid has little significance. Drury and Jones (6) and Landis and Gibbons (12) found that both the rate of accumulation and removal of edema fluid is dependent on the tissue tension which develops. As this pressure increases so the rate of filtration diminishes. This explains why edema becomes evident first in loose tissues. However, the fact that edema occurs demonstrates that the pressure developed in the tissues can only delay, but can not prevent it, when causes tending to induce it act continuously over long periods of time.

In a rational treatment of the condition every effort should be directed towards the restoration to normal of the different factors whose disturbed function is instrumental in producing the pathological state.

Treatment

Rest. In edematous states rest in bed until the condition has been removed is essential. Physical and mental quiet should be as complete as possible. Every effort must be directed to making the patient comfortable as a restless patient in bed often indulges in considerable muscular activity. It may be necessary to use sedatives such as the barbituric acid preparations or bromides to accomplish this. Adequate sleep at night should be insured, with the use of milder sedatives or morphine if required.

Diet. Fluid intake should be restricted to not more than 1200 cc. per day in any patient with edema or an edematous tendency. Thirst can usually be satisfied by giving small quantities frequently. An account of the intake and output of fluid gives very valuable information as to the water balance of the body and must be kept accurately. The patient should be weighed daily if possible as this is probably the best index of the loss or accumulation of fluid.

The amount of sodium chloride used ought to be reduced to the minimum amount which makes the food palatable. If necessary a salt free diet may be ordered but in my experience its disadvantage has been that the appetite frequently fails under this regimen with a consequent loss of strength.

Heart patients usually do best on a high carbohydrate diet with the amount of protein present in a balanced normal diet, i. e., protein 60 grams, fat 100 grams, carbohydrate 220 grams, giving a total of about 2000 calories. It is well to estimate the plasma protein percentage in stubborn cases of edema as in a small number this may be low and accordingly the protein intake must be increased proportionally.

The Karell diet is one of the popular diets in the treatment of cardiac edema. It consists of the administration of 200 cc. of milk four times a day for one week. In many instances this is effective in relieving the edema. However, I have found it to be a very trying diet for the patient and the addition of solid food with even 200 cc. of additional fluid has added greatly to the general comfort without apparently any real sacrifice.

Frequent intravenous injections of 25 to 50 cc. of 25-50 per cent glucose are sometimes of value. It is uncertain whether this acts by increasing the nutrition of the heart or by altering the osmotic pressure of the plasma.

Digitalis. The administration of digitalis in adequate amounts often produces a marked diuresis with relief of edema. This most frequently takes place in cases of auricular fibrillation with a rapid heart rate, due to the action of digitalis in slowing the rate and thus improving the general circulation. However, diuresis is sometimes seen in patients with regular rhythm even when no slowing in heart rate takes place. Here the benefit is derived from improved contractile power of the heart muscle.

Digitalis should be administered in every case of cardiac edema. Unless the general condition of the patient calls for rapid digitalization this is unnecessary on account of peripheral edema, complete digitalization being effected over the course of several days. Sufficient digitalis is given in cases of auricular fibrillation to reduce the heart rate to about 70 beats per minute. If toxic symptoms develop its temporary discontinuance is necessary. When the rhythm is regular the heart rate is a poor guide and the dose must be gauged approximately by the edema-free body weight. The dose for full digitalization can be calculated approximately as gr. 1½ of the whole leaf or 15 minims of the tincture per 10 lbs. of edema-free body weight, an estimate of gr. 2 or 20 minims per day being allowed for excretion. When the required amount has been given a maintenance dose is continued, the amount required being usually gr. 2-3 or 20-30 minims per day.

Strophanthin offers no advantage over digitalis in the treatment of heart failure, while it has the disadvantage of being unstable in aqueous solution and also of causing gastric irritation more readily in some individuals.

Theobromine Diuretics. Since Von Schroeder (18) described the marked diuretic effect of these drugs their use in edema has been extensive. Theobromine sodium salicylate, given in doses of gr. 10 to 15 t.i.d. has given disappointing results in my hands except in very mild cases. Although theocalcin is in some instances beneficial, as a rule it has not produced a spectacular response. Theophylline in doses of gr. 3 three to four times daily has proved very efficacious in many instances but its great disadvantage is that it is liable to produce gastric disturbance or severe headache. This can sometimes be overcome by giving it immediately after a meal. These drugs are usually given for three to four days, discontinued for two days and then readministered. The evidence available at present strongly suggests that they act by increasing the filtration through the glomeruli of the kidney. The blood thus leaves the kidney more concentrated than normal and replenishes its supply of fluid from the edematous tissues.

Caffeine, although an excellent respiratory stimulant, seldom causes in man any marked increase in urine volume.

Acid Producing Salts. Blum and his associates (19) suggested the use of these in the treatment of edema. In some instances considerable diuresis followed their administration. Calcium chloride has been largely abandoned in favor of the ammonium salt as it often caused severe intestinal colic. The disadvantage of ammonium chloride is that it often produces gastric disturbance. It is now available in enteric coated form so that it does not dissolve in the stomach, thus overcoming this action. It is given in doses of Gm. 6 to 8 per day. Ammonium nitrate has also been used but unfortunately in some instances it causes methemoglobinemia. The method by which these drugs induce diuresis is not fully understood. It is known that they tend to produce an acidosis and this may be the important factor. Ammonium chloride is seldom used now for its own diuretic action but usually as an adjuvant to the mercurial diuretics.

Mercurial Diuretics. The use of mercury as a diuretic was advocated first in 1886 by Jendrassik (20), who used small doses of calomel by mouth and obtained in many instances a marked increase in urine volume. This treatment gradually fell into disuse as some deleterious results due to the mercury absorbed were reported. Following the introduction in recent years of the complex organic compound of mercury, novasurol, mercury has again assumed a prominent place in the treatment of edema. Although toxic symptoms such as hemorrhagic colitis and evidence of slight kidney damage from novasurol were extremely rare it has recently been largely replaced by salyrgan, which is less toxic. These drugs are given intravenously or intramuscularly in doses of 1 to 2 cc. Care must be taken to avoid subcutaneous injection as the drug is extremely irritating. The pain sometimes present after intramuscular injection may be avoided by the use of a small quantity of novocaine. Diuresis commences as a rule in about three hours, reaches its height in six to twelve hours and usually subsides in twenty-four hours. Sometimes it persists to some extent during the next twenty-four hours. In my experience the best results have been obtained when the drug is not repeated oftener than every fourth day. If more frequent injections are given there is usually a markedly lessened response. The toxic symptoms which have been reported are stomatitis, hemorrhagic colitis and varying degrees of kidney damage. These have been very infrequent in my experience. In addition to the increase in water output there is a considerable augmentation in the excretion of sodium chloride. The concentration of this salt is sometimes increased even at the height of the diuresis. If sodium chloride retention plays a part in the edema its removal is a definite advantage. Many of the German authors originally ascribed the diuretic action to an extrarenal effect. Crawford and McIntosh (21) found that the main action was on the kidneys and this has been the conclusion of most recent investigators. The evidence at present points to the action being due to diminished reabsorption of fluid by the kidney tubules.

In order to intensify the action of the mercurial diuretics, efforts have been made to combine them with other substances known to produce an increase in urine volume. Keith, Barrier and Whelan (22) suggested the addition of ammonium chloride along the lines described above. This frequently enhances the diuretic effect considerably. More recently it has been shown by Hermann and his coworkers (23) that the simultaneous injection of theophylline and salyrgan induced a greater diuresis than their use separately. The latest mercurial diuretic introduced is one in which a complex mercurial salt is combined with theophylline. Originally named novurit it is produced in this country under the name of mercupurin. Excellent reports of its use appeared in the German literature. Crawford and McDaniel (24) found that a pronounced diuretic effect followed its administration. As a general rule this exceeded the response in the same patients to salyrgan. Indeed, some cases which failed to respond to salyrgan had a marked diuresis fol-

lowing its injection. Careful studies to detect toxic effects were made but none was observed. If the view is substantiated that theophylline has its main action on the glomeruli of the kidney and the mercurial diuretics on the tubules there appears to be a sound theoretical basis for the use of a combination of these two types of diuretics.

Urea. Crawford and McIntosh (25) originally suggested the use of this substance in cardiac edema. It is given in doses of Gm. 10 to 15 t.i.d. It has a very slow action, if any, in the removal of edema fluid. Its great indication is those cases which, the edema having been relieved by other means, have difficulty in maintaining a water balance, so that the edema tends to recur. Following the administration of the drug the urine volume often can be increased sufficiently so that a normal water balance is restored and this tendency overcome. Many patients have taken it over a period of years without any deleterious effect having been observed. The blood urea rises to a slight extent in the first few days but thereafter maintains a constant level, the urea given being quantitatively eliminated. During its excretion it prevents the reabsorption of a considerable amount of water by the kidney tubules. Urea has an unpleasant taste which can be masked to a great extent by dissolving it in ginger ale.

Phlebotomy. This is frequently a measure of great value in resistant cases of edema. No method will reduce an elevated venous pressure more rapidly than venesection and it has been shown already that when the venous pressure is raised capillary pressure is also increased, this being the most important factor in the causation of cardiac edema. Therefore, only benefit can follow a measure which tends to restore these pressures to normal. Evidence of increased venous pressure ought to suggest its use in any type of heart disease. Four hundred to five hundred cc. of blood should be withdrawn, as this amount is necessary to produce a significant change in the volume of the circulation. One has seen cases with a marked rise of venous pressure which were unresponsive to other forms of treatment but lost all the edema following phlebotomy. The operation may have to be repeated should the pressure again rise.

Mechanical Measures. Transudates into the pleural cavity, even in small amounts, often cause great respiratory embarrassment and should be relieved by thoracentesis. Ascites, unless extreme, can as a rule be relieved by the measures described above, but if the pressure developed is excessive abdominal paracentesis is indicated. Peripheral edema which has proved resistant to other forms of treatment can often be removed to a remarkable extent by the insertion of Southey's tubes into the edematous extremities. Owing to the improvement in the other methods of dealing with edema the necessity for this procedure seldom arises at present.

Thyroidectomy. Blumgart and his associates (26) have attacked the problem of heart failure from a glandular standpoint. They had found that the circulation rate and consequently the demand on the heart varied with the rate of metabolism in the body. In hyperthyroidism it was increased in proportion to the rise in the metabolic rate, while in myxedema it was correspondingly reduced. In the more severe cases of myxedema it was slowed to an extent comparable to that found in cardiac decompensation. They recommended complete ablation of the thyroid gland in those patients in whom the circulation could not be rendered adequate for body requirements by other means. The theoretical basis for the procedure was that compensation might be reestablished by lessening the demand on the circulation to a sufficient extent in those cases in which the heart was overworked trying unsuccessfully to maintain an efficient circulation. They reported very encouraging results. In a limited experience with the results of this operation some cases have responded favorably, most derived no apparent benefit, while some were definitely worse. It seemed to be rather more beneficial to the anginal than in the congestive type of heart failure. A much larger series of cases must be investigated before its true value can be assessed and more definite criteria established for the selection of cases.

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Nervous Complications Following Spinal Anesthesia: Clinical Study of Seven Cases, with Tissue Study in one Instance

SAMUEL BROCK, AARON BELL and CHARLES DAVISON, New York (*Journal A. M. A.*, Feb. 8, 1936), report seven instances of neural complications following spinal anesthesia, with tissue changes in the spinal cord in one case. In all but one of the cases the cocaine derivative used was known; two received a preparation of procaine with strychnine sulfate, three nupercaine and one procaine hydrochloride. The site of injection was the lumbar subarachnoid space between the second and third lumbar vertebrae or lower, except in one instance in which the injection was made between the first and second lumbar vertebrae. There were two instances of aseptic meningitis, one of polioencephalitis, one of lumbar radiculitis, two of cauda equina neuritis and "myelitis," and one of transverse "myelitis."

Modern Aspects of Gastro-enterology

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AT the time of its founding, one hundred and fifty-eight years ago, the United States of America was in a state of practical world isolation, separated by the ocean from any other country by a time element of at least four weeks. The advances which have been made since then in science and transportation have changed it from a separate, independent, self-contained unit sufficient unto itself and uninfluenced in any great measure by inhabitants of other parts of the world into an integral and dependent part of society and one of a close community of nations. The same influences which have altered its financial and economic situation have also produced results which have changed the people's status from a medical standpoint. Due to modern methods of transportation Americans now travel to far countries, and, likewise, the inhabitants of distant corners of the earth are crossing our threshold in increasing numbers, especially since the devaluation of the dollar has made this to their advantage. All this intercommunication of peoples is unquestionably beneficial from a cultural angle but, despite the greatest care, the diseases thus brought to us constitute a grave threat to our national health. As civilized man extends his realm farther and farther, not only does he carry the benefits of his civilization to the countries and peoples with whom he comes in contact, but he also carries with him the menace of many of his diseases hitherto unknown to the savage: on the other hand, uncivilized man makes his contribution by infecting the newcomer with many of his own local and peculiar diseases.

Scientific knowledge concerning the prevention of disease has accumulated with staggering rapidity. We must be alert to its positive information and ready to impart to our clientele the facts contributed by research. America no longer is an isolated country; the diseases but recently considered "tropical" may appear here also. Because of modern methods of transportation, the advent of the dirigible and the airplane on a commercial basis with the attendant speeding up of all means of intercourse, and the building of intercommunicating roads, the problems formerly limited to peoples in the jungles of South America, Africa, and other tropical regions soon, indeed, may be ours.

The recent epidemic of amebic dysentery may serve as an example. While it was known to many that isolated cases of this affection had occurred in scattered areas and that its presence constituted a menace to the health of our country, yet the warnings issued as recently as June, 1932, by such an authority as Colonel Craig went unheeded. As a result, the serious outbreak of amebic dysentery in Chicago in the Summer and Fall of 1933 found our practitioners ill-prepared to recognize the disease, improperly equipped to diagnose it and generally uneducated in the methods of treatment. The way in which the cases scattered over the country from the point of infection in Chicago showed that the profession was not alert to the possibility of this catastrophe. Believing that this epidemic may be but the forerunner of similar incidents, the following rather incomplete survey of the problem as seen and met in other parts of the world, particularly in relation to the gastro-intestinal aspect, may be of interest.

Whether due to the demands of business, the mere desire for travel, or the advertising lure of the palatial merchant marine of the various nations, the journeys of Americans to foreign countries have not been entirely stopped by the depression. The proper safeguarding of health while the individual is roaming over the world deserves a word of comment from my own personal observation of Americans living in foreign, and particularly tropical, lands. I fear that physicians are apt to neglect some of the hygienic hazards of far countries, forgetting that there still are regions where, even today, it is the common practice to fertilize the market gardens with human excrement. Even if such fertilization does not, by direct contact, pollute the uncooked fruit or vegetables, the fact that seventy per cent of the native population of certain countries are infected with some sort of helminth is sufficient to make one more than a bit apprehensive when one is served with a bunch of crisp lettuce! Let us make it a regular practice to warn our patients to eat only freshly cooked foods, served hot, when traveling in unfamiliar localities, and to instruct them to take raw fruit and vegetables only when they are sure that these have not been in contact with a contaminated water supply. The degree to which the unwarned American consumes uncooked salads and raw fruits in his migrations about the world has frequently brought terror to my heart. Hardly a world cruise ends without the "necessity" for suppression by the steamship company of a story of gastro-intestinal disturbance which at times has been lethal in character.

Prophylactic inoculation with typhoid and paratyphoid A and B has become practically a universal practice among experienced travelers, but are physicians sounding adequate warning with respect to the dangers of infected water supplies? And even if the water supply is protected, are we stressing sufficiently the dangers of raw milk, particularly goats' milk? In the future when giving anti-typhoid inoculations, let us combine the injections with a serious talk on the foregoing precautions. Teach the tourist that, when in doubt, he should have the food cooked and the water both boiled and filtered. If food cannot be cooked adequately and water boiled and filtered, they should be avoided. It might be valuable also to warn him to be sure that the bottled water for which he pays so dearly is unsealed in his presence, so that he may see that he is not getting a bottle that has been refilled with local water. The great traveler in the tropics,

Powell, further cautions that the very seals of bottles be inspected, since they are often tampered with.

Further, are we meeting the problem of the typhoid carrier and the danger of his employment with the serious consideration demanded? In New York City, where we pride ourselves upon the inspection of food handlers, any intelligent observant person must be conscious of the fact that much of the inspection is most superficial. Except in circumstances where the individual recently has had typhoid, rarely do we obtain information as to the presence of a typhoid carrier until an epidemic occurs due to the infection by that carrier.

The treatment of the typhoid carrier is one to which long discussion could be devoted. In the past, great efforts have been made to correct his condition by methods other than the ideal one which, in selected cases, is the removal of the gallbladder. Intravenous solutions of various kinds have been given, mercurochrome being particularly stressed. Lately some encouraging results have followed exhibition of the ketogenic diet. This diet appears to be inimical to the *B.coli* group of organisms. It is our impression that it has been of service in rendering bacterially sterile certain typhoid carriers.

English and American travelers have provided the money with which have been built the palatial hotels along the Nile from Cairo to Assuan, but has one ever observed a screened window in one of them, even in fly time? Yet the fly in Egypt is such a pest that "fly-dusters" regularly are sold on the streets; these are man's imitation of the tail of an animal which can be switched over him to keep away these disease-carrying insects. Let us warn every tourist to Egypt or other countries where the same conditions prevail to protest against a situation in which the fly from the filthy, manure-covered streets, after his promenade down the boulevard, can enter the unscreened windows of the *de luxe* hotels and, anticipating the arrival of the dinner guest, leave his infected droppings on the bread and other articles of food. This protest must be so forceful that it cannot be evaded as it was in our case when, upon protesting against the lack of screens, we were informed that in three or four weeks the weather would be so cool that the windows could be closed and then the screens would not be needed!

It is interesting to note the influence of environment upon the individual. His characteristics change as he inhabits strange countries; so do changed living conditions alter in kind and activity many of the parasites. The intestinal worms of the Far East and the Near East certainly are altered when their host is an American existing under different climatic and living conditions. Many of the parasites whose ova have been found in the mummies of ancient Egypt are medical problems in 1934. The negro slaves imported from West Africa unquestionably brought with them and gave to us the problem of ankylostomiasis. The geographic location of the infection in America absolutely proves this point; although the American is classed by some as being different from the African ankylostoma, it seems to me that the differences are due to environment.

The story of the illness introduced by the Japanese laborer into the market gardens of California has not been written. Noguchi, the Japanese scientist, rendered a service to the health of humanity equalled by few, but his fellow-countrymen in the market gardens of our West Coast, as a result of their general lack of education in modern hygiene, by spreading parasitical diseases among our people are making an absolute antithesis to Noguchi's great contribution.

That, so far in America, we have had no schistosomiasis, or at least none causing any need for concern, should not make us careless in regard to this disease and many others of similar type and source. Although the word schistosomiasis is employed, one cannot gaze upon the tablet erected to Bilharz at the University of Cairo and recall his great work in the study of the disease without regretting that this scientist's name cannot be perpetuated by naming the parasite Bilharzia and the disease bilharziasis. However, the fragmentary contributions of a previous worker and accepted scientific nomenclature demand the use of the former term. A disease such as this, which infects over fifty per cent of the people of the southern Mediterranean region and which is present in forty-two per cent of the population of some areas of Japan may, due to modern methods of travel and rapid transportation, soon be at our very doors. The same refrigerators which preserve the food in transport may likewise preserve the ova of parasites causing many tropical diseases for our ultimate consumption. The characteristic infection of schistosomiasis gives rise to papillomatous growths in the mucous membrane of the intestine combined with ulcers which are ragged and irregular: fresh slides made from the scrapings of these reveal the parasite.

The work performed by Manson during the World War in determining the characteristic cytology of the various types of dysentery is of great value. The marked increase of polymorphonuclear leukocytes in scrapings from the rectal mucosa is typical of bacillary dysentery. The picture in amebic dysentery is different in that the scrapings exhibit few mononuclear or polynuclear cells but are rich in blood cells, tissue debris and, usually, vegetative amebae or ova. Diagnostically, scrapings from cases of *bacillary* or "non-specific" ulcerative colitis are confusing unless one selects as his main point of differentiation the several groups of dysentery-form bacilli (Shiga, *B.welchii,* Sonne, etc.) and the predominant coccobacillus of Bargen. The response to staining by the gram method is of distinct differential value. It is quite possible for both types of organism to be present, but in Bargen's disease the enterococcus develops in such numbers as to crowd out and make difficult of recognition the bacillary infection. The existence of a *malaria* dysentery, due to the protozoa of Laveran is, in my opinion, questionable. Although some patients recover after the administration of quinine it may well be that the quinine, by clearing the system of malaria, enables the patient to react against intestinal infection. Proctologically the essential feature of *amebic* dysentery is the small ulcer, punched out, "umbilicated," with no area of inflammation in the

surrounding membranes. Although at first solitary, later the ulcers may coalesce. The picture is quite distinct from that of *bacillary* dysentery, where the ulcers are ragged and engorged and the surrounding mucous membrane intensely hyperemic.

As regards the treatment of amebic dysentery, the impression prevails along the Mediterranean coast that there are several drugs which prove about equally useful. Excellent results seem possible by the use of bismuth emetine iodide in 3 grain doses by mouth, as employed in Italy and Africa, but the drug has lost its popularity in this country and is therefore somewhat difficult to obtain. Together with this remedy administered *per os*, yatrin enemas are helpful (2½ per cent in an 8-ounce retentive enema). The exhibition of emetine hypodermically is an almost universal practice for controlling the symptoms during the acute diarrheic stage. This drug should be given cautiously—in fact only experienced clinicians can be trusted to treat amebiasis. Two observations particularly are to be stressed: first, that in treating amebic dysentery the infection must be attacked from many points, with multiple remedies given simultaneously; second, that the supposedly cured patient must not be lost sight of but must be given repeated courses of treatment, at first monthly and later at longer intervals, since the ova of amebae tend to remain virile in isolated parts of the body, thence to reinfect the patient at a subsequent period.

Along the Mediterranean littoral fifty per cent of the natives are infected with schistosomiasis, another fifty per cent with hookworm, and at least twenty-five per cent with malaria. Appreciating these facts, the problem of treating the sick becomes first one of eliminating the diseases mentioned before attempting the actual management of the particular one in question. The medical atmosphere must be cleared of complicating antecedents and when these infections, usually acquired in childhood, are eliminated, the case then resolves itself into the management of the uncomplicated specific condition which may still remain.

In gastro-intestinal diagnosis, therefore, let me urge that thorough stool examination for ova and parasites be undertaken by competent, well-trained parasitologists. Some of the parasites in question are of a type so sensitive to change that the stools must be examined under particular and favorable conditions; they must be kept at body temperature and many are worthless from the diagnostic standpoint unless they have been secured by the administration of a saline cathartic. This assures a fluid stool which can be kept warm in a thermos bottle until examination.

In certain affections the most satisfactory technique of examination is by means of scrapings from actual lesions of the recto-sigmoid, secured at proctoscopic inspection. This method has already been noted in the discussion of amebiasis; similar painstaking observation is needed in suspected or actual schistosomiasis. The valuable information afforded by this means should be emphasized. By it alone the various types of dysentery can be recognized and differentiated, when the clinician is experienced in colon affections. But he must actually be experienced if he is to avoid grave errors.

In the x-ray diagnosis of gastro-intestinal affections, the study of the rugae of the stomach after a very small dose of barium (or neobarium) is an advance which is receiving increased attention and will, in my opinion, shortly reach a stage of standardization which will make it of great assistance to the roentgenologist. This study is especially valuable in differentiating ulcer from cancer. In ulcer the rugae are thickened and more prominent than normal; in cancer they are entirely destroyed. Moreover, in ulcer, should the crater be filled with barium and hence no defect appear at x-ray study, observations of the adjacent rugae may give the diagnosis.

Considerable attention has been given to intragastric photography by means of an apparatus imported from Vienna (the so-called Porges apparatus). My personal opinion, after photographing a large number of cases, is that while it is possible by this means to demonstrate a single lesion, the uncertainty with which certain portions of the stomach are visualized and the chance that lesions may be overlooked make intragastric photography a diagnotic method on which scant reliance may be placed. In a series of cases which we photographed were several in which gastro-enterostomy had been performed. In these cases the gastro-enterostomy opening was missed entirely, although afterward it was demonstrated readily by the fluoroscope and was proved to be functioning perfectly. Gastric photography would certainly be ideal if practically it were possible, but at the present time gastric inspection through the gastroscope is much more satisfactory. The flexible gastroscope can be held in position from ten to twenty minutes, and a sketch can be made of the lesion for permanent record. Of course one of the disadvantages of the flexible gastroscope is that it contains mirrors and lenses, and that through it one may not obtain a specimen of tissue for examination. The comparative comfort with which this instrument is passed, as compared with the rigid gastroscope, certainly recommends the flexible type, not to mention certain dangers accompanying the passage of the rigid gastroscope.

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Problem of Nervous and Mental Sequels in Carbon Monoxide Poisoning

FREDERICK H. SHILLITO, CECIL K. DRINKER and THOMAS J. SHAUGHNESSY, Boston (*Journal A. M. A.*, Feb. 29, 1936), studied the records of seven state mental hospitals serving the metropolitan area of New York City. These hospitals were chosen because practically every admission of persons for mental illness in the metropolitan area of New York occurs in one of this group. Through the cooperation of the officers of the various institutions, every record with the diagnosis of "psychosis due to drugs and other exogenous toxins (carbon monoxide or illuminating gas)" was examined. It is known that at least 21,143 acute exposures of all degree occurred in the New York metropolitan area in a period of ten years. For the same period a survey of the seven institutions serving this area showed thirty-nine certain cases of nervous and mental sequels of carbon monoxide. Such patients formed 0.05 per cent of the total admissions. Serious mental or nervous sequels of carbon monoxide poisoning are thus infrequent in relation either to other nervous and mental diseases or to the number of acute exposures.

Clinical Notes, Suggestions and New Instruments

A Case of Multiple Carbuncles

• William S. Collens, M.D., Louis C. Boas, M.D. and George Lerner, M.D.
Brooklyn, N. Y.

BEFORE going into a description of this case report, we found it advisable to establish a proper definition of a carbuncle and a differential diagnosis from a boil or furuncle. A good discussion of the definition of a carbuncle is given by Chaney (1). By definition, a furuncle or boil is an acute, conical, inflammatory, suppurative, cutaneous lesion arising from either a hair follicle or a sebaceous gland, which comes to the surface through one channel, extrudes a central slough called a core and heals by granulation. A carbuncle, on the other hand, is a massive, acute, necrotic and suppurative inflammation of the deeper layers of the skin and subcutaneous tissues, which burrows through the columnae adiposae to form multiple necrotic foci surrounding the major infection and eventually producing several small external avenues of discharge. It is a much more severe and destructive infectious process than a boil.

This paper is concerned with a report of a patient with multiple carbuncles of the back. The severity and unusual characteristics of the case, together with the absence of mention of such a case after a search of the literature, prompts us to publish this report.

A case of multiple carbuncle is presented.

The only reference to multiple carbuncles is given by Joslin (2). He described a patient with a large carbuncle on the back of the neck, who then developed a positive blood culture, following which a large crop of abscesses appeared. Our impression is that this patient developed metastatic skin abscesses following a general blood stream infection.

Our case presented fifteen carbuncles on his back, each a distinct lesion and each one possessing the typical clinical signs of a carbuncle as described in our definition.

Case Report

Michael W. 61 years old, male, was admitted to the hospital on Aug. 13, 1935, with the following history: Two weeks before admission, he developed an infection on his back which cleared up in three days. On the following day, several other areas of swelling and redness appeared which at the time of admission covered his entire back. He felt very weak and his temperature ranged up to 102° F. daily up to the time of admission. He had had diabetes for 29 years, and although he had received dietetic care during this entire period, he had taken 20 units of insulin daily for the past year only. Physical examination disclosed an elderly man, acutely ill, febrile, toxic, showing evidence of wasting, a hypertensive heart with a soft systolic murmur over the base, accentuated aortic second sound, and the presence of visible and palpable suprasternal and supraclavicular pulsations. There were moist râles heard at both lung bases. Examination of his back disclosed fifteen typical carbuncles varying in size from 2 to 10 cm. in diameter. Each one was discrete, circumscribed, showed a large surrounding area of redness and edema, and contained numerous points of purulent discharge (see photograph). He was excreting 1.0% glucose in his urine, and blood chemistry was as follows:—glucose 548 mgms.; urea N 21.6; creatinine 1.94; uric acid 4.02; cholesterol 336. Blood count:—Hgb. 55%; R.B.C. 3,220,000; W. B. C. 24,700; polys. 81%.

He was given two therapeutic exposures to deep x-ray and then placed under a cradle baker. Within 48 hours, most of the carbuncles softened sufficiently to give a sense of fluctuation. Some were excised and others incised, and the necrotic masses removed. They were then packed with gauze, and the baking continued. For several days his temperature showed a tendency to subside, he appeared less toxic and was able to take nourishment. He was maintained on a diet of C 180, P 60, F 100, and 20 units of insulin t.i.d. He was protected against hypoglycemia by feeding post cibal carbohydrate. His urinary excretion during his hospital stay varied between 1.4% and traces. At no time was there any acetone present. Eight days after admission, the patient's condition appeared very poor. He became toxic, started to run a septic type of temperature, went rapidly downhill and died a septic death on the eleventh day. Two days before death, a blood culture was positive for *Staphylococcus aureus*. A blood transfusion and parenteral therapy of glucose, saline and insulin failed to alter his course.

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Subjective Mental and Physical Reactions to A Free Fall in Space

From a study of the subjective reactions to a free fall of approximately 1,200 feet in space, made by means of a delayed parachute jump, HARRY G. ARMSTRONG, Dayton, Ohio (*Journal A. M. A.*, Oct. 5, 1935), concludes that: 1. In a free fall in space the mental reactions are normal, except as influenced by fear, excitement or other factors not attributable to the fall. 2. In a free fall in space there is produced only one abnormal physical sensation and this consists of a very gentle, evenly distributed generalized, superficial pressure on the downward surface of the body. 3. There is an apparent diminution of hearing acuity from an undetermined cause. 4. Position in space and motion through space are recognized solely by means of vision. 5. Depth perception acuity is such that a speed of approximately 100 feet per second at a distance of 1,900 feet from an object is required to recognize motion toward that object. 6. Delayed parachute jumps are an entirely practical means of avoiding certain highly hazardous aerial situations.

Cancer

Department Edited by JOHN M. SWAN, M.D. (Pennsylvania), F.A.C.P.

EXECUTIVE SECRETARY, NEW YORK STATE COMMITTEE OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

Assisted by CHARLES WILLIAM HENNINGTON, B.S. (Rochester), M.D. (Hopkins), F.A.C.S., *German Literature Editor,* and UMBERT CIMILDORO, A.B. (Cornell), M.D. (Rome), *Italian Literature Editor.*

The Endocrine Relations of Cancer

Theoretical Considerations

WE WOULD suggest the following definition of cancer: The term "Cancer" is employed to designate a group of diseases characterized by the progressive multiplication of the normal body cells independent of the control of the normal growth regulating mechanism of the body.

Statements have been made repeatedly that we do not know the reason why the cells begin to multiply without restraint, but from the point of view of attack on the problem, we do know that the more common forms of cancer are associated with various forms of chronic irritation, and that if we can remove existing lesions of a chronic irritative nature, cancer probably will not develop.

The chronic irritant may be mechanical, as seen in cancer of the buccal cavity, the result of faulty oral hygiene, and in cancer of the lip in the pipe and cigarette smoker. It may be chemical as in cancer of the bladder in dye workers, and in breast cancer the result of the decomposition of retained secretions. It may be bacterial as in cancer of the cervix from the low grade infection following obstetrical injuries. It may be thermal.

On the other hand, it is well known that not every individual, who is subject to one of these chronic irritative lesions, will develop cancer; that, as a matter of fact, only about twenty individuals in every hundred, the victims of the same form of chronic irritation, will develop a malignant tumor. Consequently, we must admit another factor to be active in the development of tumors of all kinds, benign and malignant. It is, however, the additional factor in the development of the malignant tumors that is the most important feature from the viewpoint of the prolongation of human life. It is this unknown factor that forms the basis of the contention of the advocates of the hereditary character of cancer. This point is very well presented in the contribution of Macklin (1) who says that a study of family histories is important in the early diagnosis of cancer because it indicates to the physician the particular form of cancer to look for in periodic physical examinations of his clientele.

It is fairly uniformly admitted by the students of the problems of genetics that hereditary traits are controlled by the organs constituting the endocrine system. It is conceivable that dysfunction of the endocrine organs may be inherited and that such dysfunction will result in the production of an abnormal metabolism in one or other of the organs of this system with the secretion of a product, thrown directly into the blood stream, which will act as the primary or the secondary factor in determining tumor formation in the first instance and in the conversion of a primarily benign growth into a malignant growth. Consequently, it appears that clinical study of all cases of malignant disease for evidences of endocrinopathies might result in the discovery of syndromes that would materially assist in the early diagnosis of cancer.

The subject may be approached in one of four ways: (1) the purely speculative; (2) the syndromes accompanying malignant tumors of the organs constituting the endocrine system; (3) the experimental study of the influence of the injection of the products of the endocrine organs into animals with malignant tumors and into those without such growths; (4) the clinical study of patients with malignant tumors for evidence of endocrine disturbances.

Of the purely speculative papers the first one to be brought to our attention is that of Hans Elsner (2). His discussion of the matter begins somewhat as follows: According to the present opinion there are two factors involved in the development of a malignant tumor; chronic irritation and the constitution of the patient. The deciding influence for the beginning of malignancy may, at one time, be an increase in the irritation factor, and at another time, be an increase in the constitutional predisposition of the patient. He then goes on to discuss the differences in the two factors and describes irritative cancer and "endogenous" or "constitutional cancer." And he concludes that the main task for the clinician is to direct all cancer research towards the discovery of the constitutional factors in carcinogenesis. He puts endocrine studies in the first place in such a research and says that the material which he has already collected indicates that the understanding of the relation between the dysfunction of the endocrine glands and the development of cancer is one of the most important tasks to be undertaken. Such studies, he believes, must be made mainly on human beings.

Konsuloff and Dimitracoff (3) believe the cancer problem is a hormone problem. They say that a hormone mechanism regulates the division of the cells and the oxygen metabolism of the cells and that a disharmony in this regulatory mechanism is the basis for the conversion of the normal somatic cell into the cancer cell. Once this disharmony has begun, tumor formation will follow if there is an inciting factor such as a sufficiently strong and sufficiently persistent irritation. Without the hormone disharmony the irritation would not produce the malignant changes.

Juster and Caillau (4), after pointing out that the cancer cell behaves like a yeast in culture, say that according to the most recent studies, cancer is the result of cellular disturbances produced by chemical substances. These substances, in their opinion, will be found to be certain hydrocarbons.

In this respect Lockhart-Mummery (5) is of the opinion that the differences that have been demonstrated between tumor cells and normal cells, such as increased oxygen consumption and increased power of breaking down sugar, are the result of the greater activity of the former. He considers tumor to be a disease of growth; growth in excess of the general requirements of the body to replace wear and to repair loss.

Fifer (6) has suggested that there is a growth tendency on the part of epithelial cells which needs a hormone for its regular and orderly progress. When this hormone is absent, the cells develop irregularly. The stroma changes may be secondary to the epithelial changes. This suggestion was made after studies of the histologic changes in the mammary glands of rabbits during growth and sexual cycles.

Ewing (7), referring to the work of Kennaway and Cook with dibenzanthracine and other high distillation products of coal tar, which are active carcinogenic agents, points out that chemically they are related to oestrin and the bile acids. He then says perhaps cancer may some-

(Concluded on page 117)

Nutrition

A Note on Some Nutritional Studies with Prunes

• E. M. MRAK, Research Assistant, College of Agriculture, University of California, Berkeley, California

DURING the past few years some important advances have been made in our knowledge of the nutritive properties of fruits. Two of the most interesting contributions have been concerned with the effect of prunes on the alkaline reserve and the laxative principle of prunes. A brief summary of these contributions is given below.

It was a common belief that dried prunes contributed toward an acid condition in the body because it was observed that the ingestion of prunes caused a decrease in the urinary pH value and an increase in the urinary excretion of organic acids. The presence of benzoic and quinic acids in the fruit was suggested as the cause for the assumed acid reaction caused by the ingestion of prunes. However, until 1934 no experiments were conducted to determine the effect of including large quantities of prunes in the diet on the alkaline reserve of the blood and the urinary composition. In 1934 Mrak[1] *et. al.* conducted a series of experiments to correlate the effect of prunes on the alkaline reserve of the blood and composition of the urine. In these experiments a group of young men were fed varying amounts of prunes when on acid, neutral and uncontrolled diets. The results obtained showed no correlation between the alkaline reserve of the blood and urinary composition regardless of the diet used or the amount of prunes ingested. The inclusion of 12 or 18 prunes per day in neutral and acid diets caused an increase in organic acid and a decrease in NH_3 and total acids excreted in most instances. Also, when prunes were included in the diet the pH value of the urine dropped in most instances. The changes occurring when prunes were included in the uncontrolled diet were not significantly different from the changes occurring when prunes were omitted.

The plasma CO_2 combining power was not changed significantly when 6, 12, or 18 prunes or 4 oz. of prune juice were included in the neutral, acid or uncontrolled diets. Variations in the plasma CO_2 combining power at various times during the day before and after the inclusion of prunes in the neutral diet were slight. The variations in plasma CO_2 combining power observed were within the normal range as established by various authorities. The greatest variation in plasma CO_2 combining power and urinary pH occurred on the uncontrolled diet. These variations were not caused by prunes. The results indicated that prunes should not be classed as an acid food. They also indicate that it is not safe to interpret data on urinary composition in terms of alkaline reserve.

Recently we have isolated caffeic acid from prunes. Though this acid occurs widespread through the plant kingdom it had not yet been reported in prunes. For this reason a considerable quantity of the acid was prepared from prunes and fed to men to determine the effect of this acid on the composition of the urine. It was found that the inclusion of .75 Gm. of the acid in the daily diet has little if any effect on the urine. However, the inclusion of 1.5 Gm. of the acid in the daily diet caused a decrease in pH value and an increase in the excretion of hippuric and organic acids in the urine. It was concluded that, although small quantities of caffeic acid did not cause any marked change in the composition of the urine when ingested pure, it might be a factor in the increased urinary excretion of hippuric acid caused by the ingestion of prunes. Hence, in addition to quinic and benzoic acids, caffeic acid may be included in the group of hippuric-forming acids found in fruits.

In cooperative tests with Dr. Leake of the University of California Medical School it was found that chlorogenic acid, a combination of quinic and caffeic acids, caused intestinal muscle reactions indicating it had laxative properties. In view of the fact that quinic and caffeic acids were known to be present in prunes an attempt was made to isolate chlorogenic acid from prunes, but without success. Further experiments on the laxative properties of prunes definitely showed that prunes contain a laxative principle in addition to gums, pectins and fiber and that this principle is not caffeic acid. The laxative principle was found to be soluble in cold and hot water, heat stable and destroyed by fermentation. The laxativity experiments were conducted on isolated intestinal strips, and on rabbits, rats and humans, and in all cases the results obtained were in agreement.

In conclusion, then, it may safely be said that prunes are no longer considered an acid food and that they contain a definite, heat stable, water soluble laxative principle, the chemical nature of which has not yet been established.

[1] Mrak, E., Smith, C., Fessler, J., Lambert, H. and Harper, T. The effect of prunes and the water extract of prunes on the plasma CO_2 combining capacity and composition of the urine when included in acid, neutral and uncontrolled diets. The Journal of Nutrition, Vol. 8, No. 6, December, 1934, p. 633-646.

Certified Milk—Pasteurized

LAST December a new grade of milk, pasteurized certified milk, appeared in New York City. The event was noteworthy in a number of respects. This new grade of certified milk marked the first change in the grades of milk in this city in more than a decade, and it represented an advance in the quality of a leading milk supply that always has been the direct concern of physicians themselves.

Certified milk has been peculiarly the product of the medical profession for more than 40 years. It was originated by doctors, and it is produced today in selected dairies under the immediate supervision of medical milk commissions appointed by county medical societies. These commissions certify as to the purity and quality of this honor milk only after they have assured themselves by frequent inspections and examinations of satisfactory sanitary conditions at the farms, the health of employees and of cattle, and the low bacterial content, uniformity, and high nutritive properties of the milk as delivered.

Because of the unusual precautions taken in the production of certified milk and the rigid supervision over it, the costs of which are borne by the producers, physicians have always felt that they could prescribe this clean, fresh milk with entire confidence for infant and child feeding, and for all other uses. Pasteurization, however, adds a desirable and generally infallible factor of safety to any

clean milk supply, without exerting any detrimental effect upon the nutritive values of the milk.

The bacterial standard for pasteurized certified milk has been set at 500 per cubic centimeter, although samples already analyzed in the laboratories of the local medical milk commissions have revealed an average bacterial count of only 100, and many of the samples have been sterile. Physicians, therefore, now have available for prescription a pasteurized milk that would seem to be the ultimate in sanitary quality, as well as superior in dietary values. Certified milks, whether pasteurized or unpasteurized, merit the support and interest of all members of the medical profession and should be widely and enthusiastically employed by them for all purposes where pure, nutritive milk is indicated.

The Endocrine Relations of Cancer

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times be caused by the action of such secretions, either in normal or slightly abnormal forms. The study of the action of hormones in producing atypical overgrowths may add important facts concerning the exciting causes of certain forms of human cancer. Loeb (8) has reviewed the chemical relations between carcinogenic agents and cholesterol, bile acids, ergosterol, vitamin D, the testicular hormone and the estrogenic hormone. Loeb's paper contains an exhaustive bibliography. Karnicki (10) concluded from a series of experiments on rabbits, in which he employed gas tar as an irritant, that the glands of internal secretion have an influence on the genesis and the development of experimental carcinoma in those animals.

Quinby (9) points out the effect of tumors, not necessarily malignant, on endocrine dysfunction. He refers to the relation between thyroid adenoma and hyperthyroidism; adenoma of the pituitary body and acromegaly; adenoma of the adrenals and Addison's disease and arterial hypertension; adenoma of the Islands of Langerhans and a syndrome resembling the effects of an overdosage of insulin; adenoma of the parathyroids and a syndrome characterized by osteomalacia, muscular hypertonia, multiple bone tumors and the abnormal excretion of calcium; and a syndrome produced by adenoma of the basophilic elements of the pituitary body. He says that adenomata of the secretory organs may disastrously upset the physicochemical balance of the body. Narat (11), however, is of the opinion that the various changes of metabolism found in cases of malignant tumors are the sequelae and not the cause of the growths.

Fischer-Wasels (12) considers cancer susceptibility as metabolic in character. He points out that in animals with spontaneous and with induced tumors, studies of tissue metabolism show that the changes are of the fermentative glycolytic type instead of the normal oxidative type.

Gereb (13), Larionow (14) and Ghiron (15) also discuss the influence of hormones and enzymes on cancer. They are of the opinion that there is an influence. Whether this influence is toward the initiation of malignant change or the result of the malignancy, they are not uniform in opinion. As Larionow expresses it: "The essence of the disease must lie, apparently, in certain disturbances of the regulatory systems of the body." de River (16) has advanced the opinion that perhaps some day an endocrine extract . . . . . will be found which will act as a stabilizing agent to control cell growth.

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The Dilemmas of Natural Birth Control

(Concluded from page 106)

docrines of the pituitary gland and the foregoing blocks and continue to their arrowhead terminals at their destination. Light lines or bonds start from the sides of the said squares and also continue to their arrowhead terminals. Both heavy and light bonds represent stimulation, whereas the dotted lines show inhibition. Thus the corpus luteum receives only one stimulating bond but develops six bonds to stimulate and three to inhibit. The uterus receives nine stimulating bonds and emits only one to fulfil menstruation. Light lines also enclose explanatory notes and are straddled directly upon the action affected. The bond of an action which *follows* another is *bridged* across the bond of that action. Where an action is somewhat twofold it is branched, as in the pitocin-uterus bond.

Footnotes explain details beyond the foregoing methods of presentation.

The ovulation-menstruation graph contains many details in the squares of the ovary, ovulation, corpus luteum, uterus and breast. These are omitted from the pregnancy-parturition-lactation graph on two grounds: of simplifying this graph and of indicating that ovulation as such has been *completed*, and menstruation *supplanted* by fertilization. The same principle was followed as to the breast and lactation. In the square of the breast are placed the numerals 1, 2, 3, representing the sequence of endocrine action in producing lactation in the ovulation-menstruation graph. There is doubt as to the second, hence the interrogation point following it.

If the reader finds as much profit and pleasure in studying these graphs as I have had in preparing them the effort and time incidental thereto will be amply and fittingly rewarded.

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Pressor and Oxytocic Fractions of Posterior Pituitary Extract: Comparative Effects on Blood Pressure and Intestinal Activity

K. I. MELVILLE, Montreal (*Journal A. M. A.*, Jan. 11, 1936), shows that the blood pressures and intestinal actions of pituitary (posterior lobe) extract injected intravenously in the unanesthetized dog, vary markedly with the fraction used, even when equal pressor assayed dosages are employed. The presence of the oxytocic hormone may inhibit or abolish the typical effects of the pressor constituent. It is thus concluded that the pressor hormone alone causes under such conditions a fall of blood pressure, stimulation of intestinal activity, and defecation; while the oxytocic constituent in sufficient dosages exerts a definite antagonistic influence in respect to these actions. These observations may explain some of the conflicting reports on the clinical usefulness of the agents in question.

Some doctors don't care a damn how many X-rays they order for a patient.

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MEDICINE

Drug Allergy in the Etiology of Granulocytopenia

T. L. Squier and F. W. Madison (*Minnesota Medicine*, 19:10-17, January, 1936) note that granulocytopenia has been reported following the use of various drugs—including the arsenicals, bismuth and gold salts. A total of 163 cases of granulocytopenia following the use of amidopyrine, or amidopyrine-containing drugs have been reported; the authors have previously reported 19 such cases, and in this article report 2 additional cases. Granulocytopenia following the use of these drugs must be regarded as "an allergic rather than a toxic response," as normal individuals may take large doses of such drugs for a long period of time without showing any symptoms or change in the blood count. In amidopyrine-sensitive patients recurrences of granulocytopenia have been elicited repeatedly by such small amounts of the drug that a toxic action is "inconceivable." The use of amidopyrine and related drugs is dangerous only if the possibility of an allergic reaction is not recognized. Patients under treatment with such drugs should be kept under supervision checked by blood counts, and the drug discontinued if symptoms such as pain in the legs and malaise develop, or if suggestive neutropenia appears. Self medication, the authors note, "is especially hazardous." They are also of the opinion that drugs of the amidopyrine type should not be given during the acute phase of granulocytopenia, although there is no definite evidence that such drugs were the cause of the condition, and although certain symptoms (deep "bone ache" and fever) might appear to indicate their use.

COMMENT

Some go so far as to say that granulocytopenia is a hereditary disease. A physician to a college tells me that he uses 50,000 five-grain amidopyrine tablets a year on these students and has never had any trouble. If there is a weakness of the bone marrow it is easy to see that even a small dose of the offending agent might cause harm. Obviously, we cannot do leukocyte counts on all cases where these drugs are used. It may be safer to use amidopyrine in two-grain doses instead of five grains. Clinically the results are about as good.

M. W. T.

Fever Therapy in Arthritis

P. S. Hench of the Mayo Clinic (*Journal of Laboratory and Clinical Medicine*, 21:524-529, February, 1936) notes that in the treatment of arthritis fever may be induced by diathermy, radiothermy, heated air-conditioned cabinets, hot baths and heated air currents. Regardless of the method used certain physiologic effects are produced, and the hyperpyrexia has a bacteriolytic or bacteriostatic effect on certain organisms, especially the gonococcus. In the United States, a total of 151 cases of acute gonorrheal arthritis treated by fever therapy have been reported, with 80 per cent. apparently cured, and an additional 10 per cent. markedly relieved. Of the 9 cases of this type treated at the Mayo Clinic, 5 were "promptly cured," the rest markedly relieved. In chronic gonorrheal arthritis (of more than six weeks' duration) results are less striking. In 25 cases of this type reported at the Fever Therapy Conference in 1935, 40 per cent. were "cured" by fever therapy and 30 per cent. markedly relieved. In 7 cases treated at the Mayo Clinic, 25 per cent. were cured and 30 per cent. were markedly improved. This gives 35 per cent. cures in 32 cases.

In acute nonspecific infectious arthritis the degree of fever induced—104° to 105° F. for four to five hours—is inadequate to kill the streptococci "presumably responsible" for the arthritis, but of a total of 21 cases reported in the United States, 10 per cent. were "cured" by fever therapy, and an additional 40 per cent. markedly benefited. Of a total of 147 patients of chronic infectious (atrophic) arthritis reported by various physicians, 10 per cent. have become symptom free under fever therapy and 25 per cent. were definitely benefited. Of 60 cases treated at the Mayo Clinic, none was cured, but 20 per cent. were markedly benefited.

The author concludes that fever therapy is indicated especially in gonorrheal arthritis; if given in the early stages, there is "an 80 per cent. chance" of prompt cure. If treatment is delayed for more than six weeks, the chances of cure are reduced. In patients with chronic (nonspecific) infectious arthritis, an equal degree of relief can often be obtained by other methods that are "less expensive and less strenuous," but fever therapy is justified for patients not relieved by other measures or "intolerant of slower methods."

COMMENT

Some believe that rheumatic fever is a self-limited disease and cures itself in four or five weeks without treatment. Therefore, fever seems a natural cure in these conditions. Several observers report good results from fever therapy, especially in gonorrheal arthritis.

M. W. T.

The Effect of Calcium Injections on the Human Heart

K. Berliner (*American Journal of Medical Sciences*, 191:117-121, January, 1936) reports studies of the effect of calcium injections on the electrocardiogram in 26 persons free from cardiovascular disease. Ten c.c. of a 20 per cent. solution of calcium gluconate were injected into the cubital vein; the average duration of each injection was 15 seconds. Electrocardiographic records were taken continuously before, during and after the injection. The first and most constant change observed (in 92 per cent. of the subjects) was a flattening of the T waves, with partial inversion for a few beats; a marked bradycardia was observed in 67 per cent., and a flattening or inversion of the P waves in 54 per cent. These were the three chief signs observed as a result of the calcium injections. In 2 of the 26 cases ventricular premature beats were noted; in a number of cases, sinus arrhythmia of varying degree; in 2 cases sinus arrest for four seconds in one case and forty seconds in the other; the latter subject had a brief attack of syncope, the former only "slight discomfort." Both of these individuals were of rather frail physique. Intravenous in-

jections of physiologic salt solution had no effect on the electrocardiogram, so that the effects observed must be attributed to the calcium.

COMMENT

One wonders what the effects of other drugs given intravenously may be. In many instances, iron for example, there is no excuse for using the intravenous route. There isn't much reason for using calcium intravenously except on rare occasions. It would be interesting, too, to see if there was any effect on the heart of intramuscular injections of calcium gluconate. Probably not.

M. W. T.

Histidine in the Treatment of Peptic Ulcer

J. T. Eads (*American Journal of Digestive Diseases*, 2:426-430, September, 1935) reports 35 cases of peptic ulcer treated with histidine, given intramuscularly in daily doses of 5 c.c. of a 4 per cent. solution. At least twenty-four injections were given in practically all cases; some received thirty-six injections. Each patient was given an intradermal test with 1/20 c.c. of the histidine solution before beginning treatment in 28 cases. This test was positive in 7 of the 28 cases, and it was these cases which showed the best results of treatment. The injections caused no local or systemic reaction in any case. Six of the 35 cases, or 17.1 per cent., were cured clinically and radiologically, all X-ray signs of ulcer disappearing; there were 3 cases of gastric and 3 cases of duodenal ulcer in this group, all with symptoms of relatively short duration; 8 cases, or 22.8 per cent., showed definite clinical and X-ray improvement; 9 cases showed clinical improvement but no X-ray change. Twelve cases were not improved immediately following treatment, but 3 of these showed improvement later when placed on a strict ulcer regimen, although such a regimen had had no effect previously. The cases that failed to show any improvement included those with obstructive lesions. The author concludes that peptic ulcers of a non-obstructive type and of relatively short duration responds best to histidine treatment; and gastric ulcers more rapidly than duodenal ulcers. The advantage of the treatment is that in a considerable percentage of cases it gives a rather prompt relief from symptoms without a strict dietary regimen and with no untoward reactions.

I. F. Volini and R. F. McLaughlin (*Illinois M. J.*, 69: 39-45, January, 1936) also report 73 cases of peptic ulcer treated by histidine given intramuscularly. All the patients were ambulatory and a rather liberal diet was allowed. The histidine was given daily, the usual daily dose being 5 c.c. of a 4 per cent. aqueous solution; in patients who showed no improvement in subjective symptoms after ten doses, the dosage was increased to 10 or even to 20 c.c. The injections caused no reaction—local, general or focal, and no ill effects of the treatment were observed in any case. The immediate results of treatment were satisfactory in all but 11 cases; pain, hyperacidity, gas and belching were relieved, and the general condition of the patient improved. Six months after treatment, 4 of the patients that had shown improvement at first had had recurrence of symptoms, increasing the percentage of failures to 21 per cent. Fifty-eight, or 79 per cent., were free from symptoms; 27 of these showed complete disappearance of the radiological signs of ulcer—including 6 of the 7 gastric ulcer patients; 10 showed improvement in the radiological signs, and 21 (including one case of gastric ulcer) no change in the X-ray findings. Four of the cases treated were marginal ulcer following gastrojejunostomy, and all were quickly cured, both symptomatically and radiologically. The radiological evidence of healing was more pronounced in this group and in the gastric ulcer cases than in the duodenal ulcer group.

COMMENT

Interesting observations. Some observers believe that Tissue Extract will give the same results. It must not be overlooked that ulcer is a constitutional disease, that it may require years before it actually develops, and that no matter what treatment is instituted we should treat the patient as a whole and not overlook diet, hygiene, etc. Also it must not be forgotten that "once an ulcer, always an ulcer."

M. W. T.

Protamine Insulate

H. F. Root and his associates at the Joslin Clinic of the New England Deaconess Hospital (*Journal of the American Medical Association*, 106:180-183, Jan. 18, 1936) report a trial of protamine insulate prepared by Hagedorn of the Steno Memorial Hospital, Copenhagen, Denmark. This is a combination of insulin hydrochloride with a protamine derived from the sperm of a species of trout, *Salmo iridius*. When this compound is injected subcutaneously, it is broken down slowly so that the active insulin is released "over a relatively long space of time," giving a more even and more prolonged effect. The protamine insulate was used in the treatment of 15 patients, all but one with severe diabetes; all had been troubled "to a greater or less degree" with insulin reactions. In all the cases there was definite evidence that the protamine insulate had a less rapid and more prolonged effect; a normal fasting blood sugar was readily obtained. As recommended by Hagedorn and his associates, the regular insulin is given in the morning (and at noon if necessary), and the protamine insulate in the evening. Attempts to use the protamine insulate alone did not give good results. The best results were obtained when the diet was so arranged as to give the smallest amount of carbohydrate at night (as is done in the Hagedorn Clinic). The authors are of the opinion that it is entirely possible that the type of insulin preparation may be improved—perhaps in the form of slightly less insoluble protamine insulate—which will combine the desirable effects of both the "old" and "new" insulin.

COMMENT

No doubt of the value of protamine insulate, especially in treating children. One wonders how much protamine insulate will be available, since the supply of rainbow trout is not very plentiful. It is found in the coldest streams in mountain areas although it is possible that they could be produced in hatcheries. Recent rumors are that insulin may be made from sprouts of sprouted barley. No doubt insulin will be made synthetically in time. Another interesting feature is the manufacture of Tissue Extract as a by-product of insulin. It is said to be a vasodilator and epinephrine antagonist.

M. W. T.

SURGERY

The Surgical Risk

J. S. Rodman and W. G. Leaman (*Annals of Surgery*, 103:13-21, January, 1936) emphasize the importance of a thorough study of the "cardiovascular status" of the patient in determining the surgical risk. They propose a simplified grading of the surgical risk, paralleling the classification of the American Heart Association for medical cases, which is as follows:

Grade I. Good risks, corresponding to Class 1 of the American Heart Association. Patients in whom ordinary physical activity does not cause undue fatigue or palpitation, including cases of well-compensated heart disease except the syphilitic; and uncomplicated hypertensive heart disease. The latter the authors have found stand operation and anesthesia "extremely well."

Grade II. Fair risk with careful medical supervision and preoperative treatment, corresponding to Classes 2a and 2b of the American Heart Association. Cases of beginning congestive failure and angina, all showing undue fatigue, palpitation, dyspnea or chest pain on ordinary physical activity. Only emergency surgery is indicated without preoperative treatment; where possible such treatment can improve risk to Grade I.

Grade III. Surgery contra-indicated, corresponding to Class 3 of the American Heart Association. This group includes cases of severe angina, cases of cardiac decompensation with edema and severe dyspnea and cases with

recent coronary occlusion and marked reduction of the myocardial reserve.

In the authors' opinion the use of digitalis is indicated in the preoperative treatment only in the presence of some evidence of congestive failure, or if there is permanent auricular fibrillation with a high ventricular rate. If used, it should be given in full dosage. Quinidine is a drug of value, especially postoperatively, when abnormal cardiac mechanisms develop, such as paroxysmal tachycardia, auricular fibrillation or flutter in a sclerotic heart with little cardiac reserve.

COMMENT

A valuable résumé of how surgical risk varies in accordance with the anatomical and physiological condition of the cardiovascular system. The authors grade the function of capacity of the heart. We should thank them for re-emphasizing the importance of comprehensive preoperative examination in all major surgical cases. Please read the full article and then remember that this is only one phase of the subject of surgical risk.

C. H. G.

Use of Azochloramid in Infected Wounds

R. H. Kennedy (*American Journal of Surgery,* 31:294-299, February, 1936) reports the use of azochloramid, a new chlorine compound, in the treatment of infected wounds, at the Beekman Street Hospital, New York City. The cases treated included infected operative wounds, infected lacerations, abscesses, both superficial and deep, compound fractures, empyema and peritonitis (with irrigation and drainage). Azochloramid is employed in a 1:3300 solution in physiological saline whenever irrigation or wet dressing is desired; and in a 1:500 oily solution (in triacetin) in other conditions, especially for packing and dressing wounds with gauze that has been dipped in it. The author has found the azochloramid has the following advantages over the original Dakin solution (which he used in a large number of cases during the war). It is easier to prepare and more stable; it rarely irritates the skin; the oily solution irritates the skin less than dichloramine T; healthy granulations form more rapidly (according to the opinion of several surgeons); less frequent application is required, therefore there is less trauma to and disturbance of the patient, and less attention is necessary. Azochloramid, it has been found, can be used immediately in the dressing of pinch skin grafts. On the basis of the results obtained in the cases reported, the author recommends the use of azochloramid in the following general surgical conditions: As a prophylactic in open lacerated wounds, whether debrided or not; as a prophylactic in open compound fractures after debridement; as a prophylactic in abdominal operations in which intraperitoneal infection is present, and it is considered advisable to close the peritoneum only and pack the remainder of the wound with gauze; in infected wounds and abscesses of all types, except where gross slough or foreign bodies are present; in the preparation of burned areas for skin grafting; and as a continuous wet dressing over fresh pinch grafts.

COMMENT

Interesting observations on a new chlorine compound and its uses in watery solution and in oily suspension. Outlined results in 108 cases are carefully detailed.

C. H. G.

The Significance of Syphilis in Surgery

L. Josa (*Archiv für klinische Chirurgie,* 184:299-319, Dec. 14, 1935) reports that at the surgical clinic of the University of Debrecen, Hungary, the Wassermann and Kahn tests on 16,000 surgical patients in the hospital showed latent syphilis in 5.04 per cent. Tertiary syphilis and parasyphilitic diseases were present in 0.30 per cent. In certain surgical conditions the incidence of latent syphilis was definitely higher than the average; these conditions were: Surgical diseases of the venous system, such as hemorrhoids, varices and varicocele, and also fractures, neuralgias, erysipelas and carcinoma. Imperfect healing of wounds and wound infections after aseptic operations occurred more frequently in persons with latent syphilis than in non-syphilitics. These findings indicate that latent syphilis is of more significance in surgical conditions than has been supposed.

COMMENT

It is important for us to know whether or not a major surgical case is syphilitic. This is well known. This article emphasizes the definite modifications of surgical results by syphilitic infection. We are surprised at the low percentage of positive Wassermann and Kahn tests in 16,000 surgical patients.

C. H. G.

Free Transplantation of Skin

E. B. Potter (*Surgery, Gynecology and Obstetrics,* 61: 713-720, December, 1935) discusses the various types of skin grafts employed. On the basis of his own experience, he finds that the pinch graft and the small deep graft should be restricted to cases in which the available donor areas are limited and in which the patient's poor condition permits only a minor surgical procedure "to initiate repair"—usually cases of extensive burns in children. For other grafts, the "thick split graft" advocated by Blair and Brown (1929) is being more and more generally used in the author's practice—the graft including one-half to three-quarters of the thickness of the skin. Large individual grafts of uniform thickness of 25 to 50 square inches can be cut; the knife should pass "*through* rather than *beneath* the corium," but as much as three-quarters of the corium may be removed with the epidermis, if a thick graft is desired. If care is taken not to cut into the subcutaneous fat, the donor areas, even though extensive, heal within a week or ten days. The author's personal experience with this type of graft leads him to agree "unqualifiedly" with the claim of Blair and Brown that it has "more of the good than the bad features of either the full thickness graft or the thinner Ollier-Thiersch graft." There are relatively few conditions in which the thin Thiersch graft is preferable; one of these is for lining the orbit.

COMMENT

Experience speaks for thick skin grafts.

C. H. G.

Cholangiography

N. F. Hicken, R. R. Best and H. B. Hunt (*Annals of Surgery,* 103:210-219, February, 1936) have found that cholangiography, or roentgenographic visualization of the gall-bladder and the bile ducts, is a valuable procedure in biliary tract surgery. Cholangiography may be done at the time of operation by injecting some radiopaque substance, such as lipoiodine, directly into the gall-bladder and bile ducts, and making roentgenograms immediately; the operative procedures to be carried out may be determined by the findings. Postoperative cholangiography is done for visualization of the extrahepatic ductal system, by injecting lipoiodine into the drainage tubes that are anchored in the gall-bladder and/or bile ducts at the time of operation. It may also be used for the study of external biliary fistula by injecting the opaque substance into the fistula. Lipoiodine has been found to be a non-irritating, non-toxic substance which gives an excellent visualization of the entire biliary tract; it can be used in the presence of acute cholecystitis, cholangitis, strictures, calculi or pancreatitis without causing local or systemic reactions. This method demonstrates the presence of calculi, strictures, neoplasms or fistulae, and the patency or non-patency of the bile ducts. It helps to determine how long the biliary system should be drained, confirms the patency of the common bile duct before removal of the drainage tubes, and demonstrates whether a cholecystostomy is or is not decompressing and draining the entire ductal system. Occasionally it has a definite therapeutic value, as a lipoiodine lavage of the common duct may flush out small stones or inspissated plugs of mucus or relieve spasm of the sphincter, thus relieving conditions that cause distress and discomfort after cholecystectomy.

COMMENT

Expansion of uses of lipoiodine.

C. H. G.

Amniotic Fluid Concentrate As An Activator of Peritoneal Immunity

H. L. Johnson and his associates in the Department of Surgical Research, Harvard Medical School (*Surgery, Gynecology and Obstetrics,* 62:171-181, February, 1936), note the inadequacy of present methods of dealing with postoperative peritonitis, and the need for the study of the principles of peritoneal immunization. In experiments on dogs, they found that certain substances introduced into the peritoneal cavity excite the production of a defense exudate. The reaction to amniotic fluid concentrate was more rapid than to the other substances tested; in non-infected animals no untoward symptoms were produced by the presence of this concentrate in the peritoneal cavity. In infected animals, a larger percentage of recoveries occurred in those protected by amniotic fluid concentrate than with any other method tested. The authors suggest that "the brief immunization interval" required with amniotic fluid concentrate "makes it adaptable for operative as well as pre-operative introduction."

COMMENT

The above item may provide tremendous therapeutic resource in the future. There seems to be a preventive feature of great importance. All abdominal surgeons should be thoroughly acquainted with this work.

C. H. G.

UROLOGY

Mandelic Acid in the Treatment of Urinary Infections

D. M. Lyon and D. M. Dunlop (*British Medical Journal,* 2:1096-1097, Dec. 7, 1935) report the treatment of urinary infections with mandelic acid, as suggested by Rosenheim (1932). The drug was given in the form of the sodium in a neutral mixture, and ammonium chloride was given in doses sufficient to render the urinary pH below 5.5. Of the 16 cases of urinary infection (cystitis and pyelitis) treated, 10 were of a chronic type, 5 of these with the symptoms persisting over a year. The urine was rendered sterile in all but 3 cases; relapses occurred in 4 cases after treatment was discontinued, but in 3 of these cases, the relapse was successfully treated with mandelic acid, the urine becoming sterile in a few days; the fourth case was not treated, as the patient left the district. The authors advise that treatment should not be discontinued immediately after the urine has become sterile, and that possibly further courses of treatment should be given to avoid recurrences.

Not only did the urine become sterile in most instances "with remarkable rapidity considering the chronic and intractable nature of many of the cases," but the symptoms of frequency and dysuria were also promptly relieved. In one of the cases in which the treatment failed, symptoms of acidosis developed, although it was found impossible to render the urine acid; in another case treatment was discontinued because of gastric disturbances. Otherwise only "trivial side effects" of the treatment were observed. These results indicate, in the author's opinion, that "in mandelic acid a really efficient urinary antiseptic has been found."

COMMENT

Attention to the urine alone in a chronic infection may be only a quarter of the problem. Back of the chronic stage is the acute stage and back of that are the source and kind of infection. Another factor is "habit" which the body has acquired in the chronicity. Hence after a successful restoration of the urine the treatment must be continued so that relapse cannot in ordinary conditions occur. My own policy is to make this continued treatment last at least a tenth of the total history of the case. Intelligent patients understand the preventive value of this treatment. Others do not because they cannot understand any medical policy or ascribe disinterested good faith to their physicians.

V. C. P.

End Results of Prostatic Resection

H. A. Dege (*Archiv für klinische Chirurgie,* 184:484-491, Jan. 22, 1936) reports that at the Surgical Clinic of the University of Jena, prostatic resection using the Kirwin vesical neck resector has been done in 117 cases of prostatic obstruction. Relief of symptoms with little or no residual urine was obtained in 50.4 per cent. of the entire series. There were 10 postoperative deaths, most of them due to severe urinary tract infection. Uremia did not develop in any of these cases. The operation of prostatic resection, the author believes, cannot take the place of prostatectomy in the treatment of prostatic adenoma. The best results are obtained in cases where the urinary obstruction is due to prostatic bars, sclerosis of the sphincter and middle lobe hypertrophy. Repeated resections may be necessary, but in 56 cases of the series reported, only one treatment was needed; in 35 cases, two treatments; and in 15 cases three or more treatments. In 4 cases in which the resection did not entirely relieve the urinary obstruction, the patient's condition was nevertheless so much improved that a prostatectomy was subsequently done with excellent results.

COMMENT

The same quality of results continues to come from the honest reporters. Successes in 50%, deaths in 10%. Infection of the urinary tract uppermost as the cause of death. Although immunity seems to be present new pabulum in the slough causes the bacteria to change their activity and toxicity in amazing degree. The best successes are in the restricted types of obstruction. Great conservatism is still common sense applied to this technique, although it is so attractive in its dexterity.

V. C. P.

Treatment of Undescended Testes by the Anterior Pituitary-Like Hormone from the Urine of Pregnancy

A. Goldman, A. Stern and J. Lapin (*New York State Journal of Medicine,* 36:15-19, Jan. 1, 1936) report the treatment of 11 cases of undescended testicles by the injection of anterior pituitary-like hormone of pregnancy urine. The hormone preparation used contains a mixture of Prolan A and B and is standardized at 125 rat units per c.c. The age of the patients treated ranged from nine to twenty-three years, nine years being the earliest age at which this treatment should be begun in the authors' opinion. The average dose used was 250 rat units; the total amount given ranged from 1,800 to 14,000 rat units. Increase in the size of the testicles and descent into the scrotum were attained in all but one case; the one failure was in the patient twenty-three years of age, who had only one abdominal testicle. In 7 of the patients considered to be of the Fröhlich type, 5 showed changes in bodily measurements to a more masculine type; 4 patients with small external genitalia showed an increase in the size of the penis and in the size and rugosity of the scrotum.

COMMENT

This most interesting study is in so new a field as to induce watchful waiting. One may readily see how hormones may correct the glandular maldevelopment of the undescended testes but it is very difficult to understand how the anatomical embryological defects surrounding the arrest of the testis in the canal or in the abdomen should be corrected by hormone action. The terms Prolan A and Prolan B have been supplanted by the terms follicle-stimulating factor and lutein-stimulating factor. Their exact nature is still unknown, although their actions are reasonably well understood.

V. C. P.

Nephroptosis

J. C. Birdsall (*Journal of Urology,* 35:135-155, February, 1936) reports 150 cases of nephroptosis. Pain was the most frequent symptom—the predominant symptom in 138

cases; in 122 cases it was referred to the renal area; urinary symptoms were noted in 104 cases and gastric disturbances in 45 cases; 13 patients had had attacks of renal colic. Neurologic symptoms were noted in 30 cases. Hydronephrosis had developed in 81 cases, calculus in 22 cases, and pyelitis in 52 cases. Thirty-four patients had been subjected to some operation before the diagnosis of nephroptosis had been established, without relief of symptoms; in 20 cases an appendectomy had been done, and in 10 cases an operation on the uterus or tubes and ovaries. When the diagnosis of nephroptosis was made, palliative measures of treatment were tried in 86 cases; these consisted of correction of faulty posture, improvement of the general systemic tone, and the application of a properly made and fitted abdominal belt or corset. Such abdominal supports were fitted with the patient lying down with the hips elevated. Associated infection was treated by renal lavage and other measures. In 33 cases these methods gave satisfactory results. In 53 cases little or no relief was obtained; 19 of these patients were subsequently operated with permanent relief. In 20 of the 150 cases, the kidney was found to be the seat of "advanced destruction" and was removed. Nephropexy was done by the technic of Kelly and Brödel, using three sets of mattress sutures introduced through the capsule of the posterior surface of the kidney; the upper pole of the kidney is fixed at a point closer to the spine than the lower pole, to give free drainage. This operation was performed in 57 cases of unilateral and 9 cases of bilateral nephroptosis, making a total of 75 kidneys operated. The results were excellent in 73 kidneys; one of the failures was due to faulty technic, the other to advanced hydronephrosis, which subsequently made nephrectomy necessary. In 26 cases pyelograms taken in the erect posture after operation showed the kidney in excellent position.

COMMENT

One great point is the measure of the descent of kidney and kinking of the ureter by pyelograms in the lying down and erect postures, especially after walking a little. Another diagnostic help is turning the patient toward the other side in the lying down position to show any excursion toward the opposite side. These several tests tend to show displacement of the other viscera also. If the embryological fact is one of descent of the other viscera then operation is apt to fail because that descent of the other organs rapidly breaks down the plastic repair of the kidney. The record shown in the contribution is diversified and very valuable.

V. C. P.

Multiple Urograms

J. S. Lewis (*American Journal of Surgery*, 30:469-477, December, 1935) describes a method for making multiple urograms, which can be used in the average clinic or hospital, not requiring special apparatus. A flat kidney-ureter-bladder film with the ureteral catheters in position is first made. Then the opaque medium—skiodan—is injected with no pressure other than gravity, under direct fluoroscopic control. When the pelvis, including major and minor calices, is filled, the catheters are slowly withdrawn, "the two sides being kept apace" to a point 5 to 8 cm. above the ureteral orifices. All preparations for making roentgenograms are completed, and the catheters further withdrawn, slowly injecting 1 c.c. of the medium. The first exposure is made when the catheters reach the bladder, and two or three additional films in rapid succession; the time of exposure is three-fourths of a second, and the average time between exposures eight to nine seconds; then a final or "residual" film is made in ten to twelve minutes. An additional film is made after the last serial exposure, and with the patient in the upright position, when ptosis is suspected. Fluoroscopy is an important factor in this technique, giving valuable information in regard to the physiology and preventing overfilling of an atonic pelvis. This method of serial urography is of special value in the study of inflammatory lesions of the urinary tract. The author has found a hypertonicity of the renal pelvis and ureter in the early stages of such lesions, and a hypoperistalsis with resulting dilatation in the later stages.

COMMENT

This method is very enticing because it shows both kidneys at one sitting. On the other side of the problem is an important fact. Quite often one meets a kidney which goes into a crisis after even gentle retrograde injection. The worst case I have ever had was a nurse who remained totally anuric for nearly 24 hours after gentle lavage of the pelvis with weak boric acid water. Fluoroscopic observation of this work should tend to avoid such crises.

V. C. P.

Vitamin A Acid Ash Diet for Urinary Calculi and Infection

J. A. Lazarus and A. A. Rosenthal (*Urologic and Cutaneous Review*, 40:1-8, January, 1936) note that experimental data and clinical findings indicate that an acid ash diet high in vitamin A would be of value in the treatment of urinary calculi of the alkaline earthy type, and in the prevention of recurrence of calculi of the same type, also in the treatment of encrusted cystitis following operations on the bladder and for the acidification of the urine in the treatment of urinary infections. The authors report the treatment of 121 cases of urinary calculus or infection with vitamin A acid ash diet, as recommended by Higgins (1933). Of these cases 18 had calculi when treatment was begun; only 6 of these patients were under treatment for over five months, and in one of these cases there was evidence of partial dissolution of the stone; of the 12 cases under treatment for less than five months only 6 were kept under observation; 2 of these showed multiplication and enlargement of the stones, and 4 no change. In 76 cases in which calculi had been removed surgically, the vitamin A acid ash diet was given postoperatively, of whom 62 were kept under observation; of these 5, or 8 per cent., developed recurrences. In the cases of urinary tract infection treated with this diet, there were 12 cases with renal involvement and 15 cases with the infection localized to the bladder and posterior urethra. Of the 12 cases with renal involvement, 2 were not followed up; of the remaining 10 patients, 9 showed marked improvement or complete cure. Of the 15 cases of vesical involvement, 3 were not followed up; of the remaining 12 patients, 11 showed marked improvement or complete cure. In some of these cases the diet was supplemented by ammonium chloride and hexamethylenamine. The results obtained were definitely better than the authors had obtained with the ketogenic diet. While the authors are of the opinion that the vitamin A acid ash diet can be expected to be effective in the treatment of only a small percentage of renal calculi, they consider that it is of definite value in the prevention of recurrences, and especially in the treatment of urinary tract infection.

COMMENT

The difficulty with all dietetic treatment of urinary infections and calculi is the difficulty of maintaining it at the required regularity, concentration and quality to hold the result. Various gastro-enterologists assert that ketogenic diet soon wearies the patient. Urologists have noted that its use requires periods of rest. These observers note the use of ammonium chloride and hexamethylenamine in some of these cases. Hence the old point comes up again that the infection must be controlled at its source in the intestines or elsewhere, otherwise any and all of these special efforts fail. This study is intensely interesting but the plan has the limitations named.

V. C. P.

PEDIATRICS

Acetylsalicylic Acid with Magnesium Oxide for Prolonged Use in Rheumatic Infection in Children

A. D. Kaiser (*Journal of Pediatrics*, 8:41-51, Jan., 1936)

notes that recent reports have indicated that magnesium has a definite synergic effect when combined with certain antipyretics, including sodium salicylate and acetylsalicylic acid, and that such combinations have a lower toxicity than the individual components. The author has used a combination of acetylsalicylic acid and magnesium oxide in the treatment of children with various manifestations of rheumatic infection for a period of six to twelve months. The preparation used was in tablet form, each tablet containing 3½ grains of acetylsalicylic acid and 3½ grains of magnesium oxide; the daily dosage was 10 to 15 grains of acetylsalicylic acid. Seventy-five children were treated with a control group of an equal number of children of similar age and similar group of symptoms. There were four types of cases treated, each type with the same number of untreated controls. The first type had arthritic or muscular pains only; the second showed carditis in addition to arthritic or muscular pains; the third, chorea; and the fourth, chronic rheumatic carditis. In cases of the first type, 24 of the 31 treated children were entirely relieved of symptoms at the end of the period of observation, and only 10 of the 31 controls were free from symptoms. In types 2 and 4, there was no evidence of any effect of the treatment on the cardiac symptoms, but in cases of the second type with associated arthritic or muscular pains, 91 per cent. of the treated patients were relieved of pain and only 65 per cent. of the control group. In the 8 treated cases of chorea, 5 were free from symptoms and 3 definitely improved at the close of the observation period; while of the 8 controls, 2 were free from chorea, 5 improved, and one not improved. During the period of observation, there were 4 cases showing recurrence of rheumatic symptoms among the treated cases and 12 cases with recurrence among the controls. In most instances in the treated cases, the parents reported a definite improvement in the general condition of the child and wished to continue the drug. No untoward reactions were noted in any of the treated cases. The author concludes that the prolonged use of acetylsalicylic acid with magnesium oxide is of definite value in the treatment of rheumatic children, in that it relieves the arthritic or muscular pains, improves the general condition, and acts favorably in chorea, even though it has no definite effect upon carditis.

Prevention of Weight Loss in New-Born Infants

I. M. Epstein and I. Thompson (*Archives of Pediatrics*, 53:133-136, February, 1936) regard a marked loss of weight in new-born infants before feedings are begun as entirely unnecessary and due to partial dehydration. They have used a 5 per cent. lactose solution containing 2½ grains of sodium citrate per ounce of solution for "prelacteal" and complementary feedings for new-born infants. In 300 infants alpha lactose was used and in 100 infants beta lactose. The initial weight loss was definitely less and the percentage regaining birth weight on the ninth day definitely higher in these infants than if only water or a sugar solution is given. The results were somewhat better with beta than with alpha lactose. With alpha lactose, the average initial loss in weight was 5.68 per cent., and 70 per cent. of the infants regained the birth weight by the ninth day. With the beta lactose, the average initial loss was 4.77 per cent., and 82 per cent. regained birth weight by the ninth day.

COMMENT

Much work has been done on the prevention of weight loss *in the new born. It seems to me where the infant is normal in all respects, labor has been normal and the general well being of the mother is good, no prelacteal feeding is necessary other than the breast given at four hour intervals. Where labor is prolonged and difficult, or where an anesthetic has been used, a prelacteal sugar feeding, as recommended by Epstein, in the above extract, is indicated. It would seem the good results obtained are due definitely to the hydrating effect and the stabilization of the acid base mechanism, the lessened weight loss being only an indication of the effectiveness of the hydrating solution. It is an important observation to note the small percentage of babies fed artificially on the tenth day with a prelacteal sugar solution, as compared to the relatively large numbers artificially fed on the tenth day who had a prelacteal feeding of a food containing a high protein. Schorer and Loffoon made this observation. Let us forget weight* loss *and direct our attention toward prevention of dehydration and acid base unbalance.*

O. L. S.

Gastric Aspiration in Children with Pneumonia to Obtain Material for Pneumococcus Typing

S. A. Wittes and J. G. M. Bullowa (*American Journal of Diseases of Children*, 50:1404-1411, December, 1935) note that infants and young children with pneumonia rarely expectorate, hence sputum is not available for pneumococcus typing. Pulmonary inflammation, however, is usually associated with increased pulmonary secretion, and even when there is no cough, this secretion is carried to the rima glottidis and thence "overflows into the gastric tract." The authors have used gastric aspiration by means of a stomach tube and a Luer syringe to obtain material containing the pneumococcus from the stomach in children with pneumonia; the secretion obtained in these cases was thick and mucoid. The method yielded pneumococci of a definite type in a large percentage of cases; and the authors consider that it has definite advantages over other methods used for obtaining material for pneumococcus typing in young children (laryngeal and pharyngeal swabs, or transthoracic pulmonary puncture). It requires less manipulative skill and is less disturbing to the patient than laryngoscopic examination; it can be repeated several times, which is undesirable in the case of pulmonary suction; and it can be used in cases in which the physical signs are not definite, and in cases with "scattered" pneumonic lesions. In the cases reported the method gave a higher percentage of positive results than either of the other methods.

Prophylaxis of Bronchopneumonia in Whooping Cough and Measles

P. Chevrel (*Bulletin de l'Académie de medecine*, 115: 44-47, Jan. 7, 1936) notes that bronchopneumonia is one of the most serious complications of both whooping cough and measles. In the Hotel-Dieu of Rennes, a polyvalent vaccine containing pneumococci, streptococci, staphylococci, enterococci and *M. catarrhalis* has recently been given to children admitted to the hospital with either whooping cough or measles. The vaccine was given in four injections at forty-eight hour intervals in doses of ⅓ to ½ c.c. increasing to 1½ c.c. Of 132 children with whooping cough receiving the vaccine, only 2 developed bronchopneumonia, and only one of these died (six weeks after vaccination); of 238 children with measles given the vaccine 12 developed bronchopneumonia, with 5 deaths. Prior to the use of the vaccine, the incidence of bronchopneumonia in the hospital had been approximately 25 per cent. in both diseases with a high death rate. No other change in the methods of treatment had been made, and the diminished incidence of the complication of bronchopneumonia must be attributed to the vaccine.

Bismuth Arsphenamine Sulfonate in Congenital Syphilis

W. A. Reilly (*California and Western Medicine*, 43: 429-432, December, 1935) reports the use of bismuth arsphenamine sulfonate in the treatment of congenital syphilis in children; 170 children ranging from birth to sixteen years of age have been treated with this drug, over 3,200 injections having been given. Bismuth arsphenamine sulfonate contains 12 to 15 per cent. of arsenic and 25 per cent. of bismuth; it is given by intramuscular injection and causes fewer reactions than other antisyphilitic drugs; in the author's series, reactions occurred in only 0.8 per cent. of the injections. Two patients developed a

(Concluded on page 128)

Economics

Department Editor: THOMAS A. MCGOLDRICK, M.D.

Responsibility of the City of New York For Adequate Medical Care of Its Poor

BY tradition, the medical profession has donated its services to the poor, receiving its remuneration from services rendered to the non-indigent. This relationship has been entirely voluntary on the part of the profession and was possible only so long as the ratio of indigency to those able to pay for medical care was not too great. In 1920, less than 1 out of 10 citizens of New York City received free medical care. Today, according to figures compiled by the Committee on Medical Economics of the Medical Society of the County of Kings, 6 out of every 10 patients are availing themselves of the free services of the doctor. When the ratio reaches such staggering proportions the profession cannot voluntarily maintain the health standards which are essential to the community. Further, as the physician's economic welfare suffers, he cannot provide for himself adequate equipment or postgraduate study properly to continue his work, which must result in lowered standards of medical care for his private patients.

Medical care is one of the basic necessities of life. The City provides food, shelter and clothing for its indigent at no expense (and often with a profit) to the vendor but makes little effort to supply even a partial medical service to its poor. Activities of the City of New York in the field of community health and sickness in the past deserve the criticism not only of the profession but the public as well. The department of health is charged with the control of community health problems. Operating on a budget of less than $5,000,000 it has compiled statistics, encouraged physicians to control morbidity and mortality, and hired a relatively few physicans at salaries averaging less per hour than school teachers and firemen to enter the field of *diagnosis* and *treatment*, which has been extended often to those able to pay their private physician for the same service. In addition, this department has too often been guilty of using the mails and house to house canvassing in soliciting patients, offering free care to all regardless of economic status. This department points with pride and assumes credit for all favorable trends in the public health.

The Department of Hospitals, also operating on a greatly deficient budget, maintains the facilities essential to supply institutional bed, board and nursing care to the indigent poor. In these institutions medical care (except in the ancillary services) has been provided gratuitously by the medical profession. In addition, dispensary services have been developed for the care of ambulant patients and many who are able to pay a physician are admitted to this service. The physician receives some return for his time and services in the form of experience gained in this work; especially is this true in the operating room but it is not true for his hours of hard and tedious work in the dispensary. In addition he is held legally liable for suit brought by any patient admitted to the service. The Department of Hospitals, unable to extend institutional care to all deserving patients, encourages the voluntary hospitals to admit these "city cases" to their wards and dispensaries. For this care the city pays but half the admitted cost for like service in the city hospitals and pays nothing to the voluntary hospitals for the indigent admitted to the dispensary. If the hospitals complain, they are told to stop receiving these patients and pay taxes in return. *This situation is the greatest cause of the financial deficits in our voluntary hospitals* and to balance budgets they resort to the practice of medicine by engaging in maternity, tonsillectomy, x-ray and hay fever services, etc., for a flat rate in unfair competition with the physicians in the same community.

The Department of Hospitals of the City of New York is further taking thousands of dollars annually from the physicians and voluntary and private hospitals of the city by collecting and retaining fees, not only for the institutional care of workmen's compensation cases but also for *medical* and *surgical fees* as well. The Medical Societies are helpless legally to correct this unjust practice.

The above conditions will continue as long as the medical profession and public continue to do nothing about them. Surely the physicians can no longer be expected to tolerate them indefinitely. The following programs must be insisted upon:

I. An adequate budget (estimated $29,000,000) for the Department of Health. This department to again exert its chief efforts in the field of community health and return the individual patient to his own physician, who should be remunerated from community funds for diagnosis and treatment. (The activities of the medical and nursing service of the Emergency Relief Bureau should be permanently taken over by the Department of Health).

II. An adequate budget for the Department of Hospitals (estimated 60% increase essential). This department must:

A. Build no more physical plants so long as facilities for adequate care of indigent patients are unused in our voluntary hospitals.

B. Extend payment to voluntary hospitals for care of indigent patients approximating cost for similar services in municipal hospitals (including cost of bonded indebtedness).

C. Adequately remunerate physicians giving service in municipal hospital dispensaries.

D. Limit dispensary admissions to those who are actually indigent.

E. Remunerate voluntary hospitals for the care extended to indigent ambulant patients in their dispensaries at rates approximating cost for similar services in the municipal hospital dispensaries (including cost of bonded indebtedness and remuneration of physicians).

F. Accept only emergent injured workmen insured under the Workmen's Compensation Law, transferring such patients to voluntary and private hospitals as soon as their condition warrants removal and allowing physicians in charge compensation for their professional services in such cases.

Guarding the Milk Supply

Among the myriad activities of a county medical society none is more important than the certification of milk. Not only is this function a most significant professional and public service but, unlike most of the operations of the county medical society, it is conducted at no expense to it, and in some instances is even an appreciable source of revenue.—*M. J. Rosenau, M.D.*

Wound Treatment

The essence of wound treatment is an attempt (a) to remove foreign material such as dirt, and (b) to remove serum, blood and devitalized tissue as represented by bruised or frayed skin, fascia, muscle or other elements.

—JOHN J. MOORHEAD, *Southern Surgery.*

Editorials

Dr. Norman E. Titus Joins Editorial Staff

After several years of able service Dr. Charles R. Brooke has resigned as a member of the editorial board which conducts the CONTEMPORARY PROGRESS department of this journal. PHYSICAL THERAPY, therefore, will hereafter be in the hands of his successor, Dr. Norman E. Titus, Director of Physical Therapy at the Presbyterian Hospital and Vanderbilt Clinic and Consultant in Physical Therapy at many other hospitals in the metropolitan district. Dr. Titus is an ex-President of the American College of Physical Therapy (1929-30). There is no man whose name is more indissolubly associated with physical therapy in every one of its phases.

The New-Born Baby's Marathon

The work of Russell M. Wilder at the Mayo Clinic seems to point the way to a further lowering of neonatal mortality. Wilder observed that the new-born children of diabetic mothers displayed hyperinsulinism, doubtless brought about by the demands of the mothers' organisms. In fact, the diabetic mother tends to improve in the latter months of pregnancy because of the assistance received from the fetal pancreas. After the birth of the baby the mother's blood sugar rises. The baby, released from its task of supplementing the mother's antepartum insulin, continues to metabolize its own sugar at an abnormal rate, and at birth reveals an extreme degree of hypoglycemia. Wilder, by injecting glucose subcutaneously into these babies, has notably reduced their mortality. But why, he asks, is it not reasonable to suppose that even normal babies need a little help along this line, since after many hours of trying to "get born" they must be in somewhat the same condition as Marathon runners with respect to sugar depletion. This suggests a long step in the conservation of neonatal life.

The Pendulum of Thoracic Surgery Swings

Forty-three years ago, in 1893, George R. Fowler, leading surgeon of his time, was engaged in *expanding* the lung in empyema, as today we are *collapsing* it and thereby obliterating pulmonary cavities in tuberculosis.

Fowler aimed at obliterating a cavity, too—the pleural cavity. So he was in line with all the thoracic surgeons: de Cerenville (who, in 1885, made the first attempt to collapse a tuberculous cavity by the removal of the overlying ribs), Spengler, Quincke, Turban, Landerer, Hofmeister, Borchard, Garré, Lenhartz, Brauer, Friedrich, Wilms, Sauerbruch, Estlander, Schede, Murphy, Graham, *et al.*, most of whom, however, dealt with thoracoplasty and collapse, while Fowler concerned himself with pleurectomy and expansion.

Fowler's operation was a total pleurectomy with decortication of the lung. He removed the entire pleura, the visceral layer being peeled off last with the aid of scissors.

In this day, when the whole emphasis is upon thoracoplasty, bringing a force to bear upon tuberculous pulmonary cavities from without inward, we should pause to consider the original genius of the man who conceived the liberation of a force to bear upon the empyema cavity from within outward.

Vitamins and Social Morals

The finding of a League of Nations nutrition committee that in almost every country the diet of the average man or woman is deficient in essential factors furnishes food for thought. Our thought is that such deficiencies are just as likely to be detected in a Sir Edward Grey as in an average man. In the average man there are no practical consequences of note. In a Sir Edward Grey there may be strange behavior on the eve of a war. Perhaps Sir Edward's sinus troubles and impairment of vision were only one phase of a syndrome that included a certain amount of character alteration.

It is our eminent and powerful folk who often astonish us with their abysmal dietary ignorance and absurd eating habits.

Add arteriosclerosis and syphilis and you have the world balanced at times on a perilous tripod.

The Present Status of Natural Birth Control

By what fruits is natural birth control becoming known? Those who demand of it one hundred percent efficiency and accuracy all at once are uttering an absurdity and expecting what medical science has never produced, namely, a cut-and-dried, universally acceptable and applicable contribution all at once. That is not the history and development of artificial immunity and allergy, as two examples.

It has always required about ten years for any new fact to receive comprehension and application by the medical profession. In illustration of this truth, recall that it required ten years for the classroom lectures and the textbooks to teach the relation between hay fever and pollens. Of the last ten years seven or eight have passed in study and two or three years in the application of natural birth control.

Now at the end of the three-year period results among large numbers of women, having to do with menstruations and intercourses, are appearing from the authorities.

The STERILE PERIOD is concerned in the following reports:

Miller now has 202 normal and fertile couples whose obedience to directions has had amazing

and convincing results. There have been 5803 intercourses with no pregnancies and about 5000 menstruations in this study.

Ogino adds to the record. Nine healthy women during 235 months had 601 intercourses between the 1st and 11th day *before* the next menstruation. No pregnancies ensued. Seven healthy women during 104 months had 179 intercourses *during* the postmenstrual sterile period. No pregnancies resulted.

Latz and Reiner report 114 couples with 4702 sterile intercourses.

All these reports cover about two years and total 332 couples, 11,285 contacts and no resulting pregnancies.

THE FERTILE PERIOD is involved in the following facts:

In this group Miller has 38 *voluntary* pregnancies, each upon decision to have a child; three pregnancies by artificial injection of the semen; and seven "surprise" pregnancies by disobedience to orders although artificial devices were used. These seven couples cohabited during the fertile period against advice.

Ogino has some interesting groups. Twenty-five cases of known conception days have corroborated the fertile period a second time. Forty-six pregnancies occurred directly after marriage without a menstruation. All of these wedding days were during Ogino's fertile period or one day *before* but none *after* it. They are also about equally divided between the days *before* menstruation (interval period) and those *after* it (postmenstrual period).

The fertile period is demonstrated further by Ogino's forty-six cases of "mid-month pain" (probable moment of delivery of the ovum). These cases occurred before the next menstruation on the 14th day 12 times and on the 15th day 24 times (total 36); on the 12th, 13th and 16th day each 3 times; and on the 10th day 1 time (total 10). Both ovaries were microscopically studied at 36 operations. In those *without* rupture of the Graafian follicle menstruation always began more than 12 days later and in those *with* corpus lutem the flow began within 16 days later.

THE APPLICATION OF NATURAL BIRTH CONTROL is represented by all the foregoing facts. De Guchteneere has ceased investigations and is practicing only application. Knaus affirms that his success continues.

The thoughtful reader will recognize these records as remarkable. No artificial method of birth control has as yet reached satisfactory and uniform results. These records by the masters can be duplicated by those who follow the masters' details of study of patients' charts and instruction from them. The arch of the portal to success has these two stones, and also comprehension, obedience and cooperation by the wife and the husband.

As to menstrual regularity equal strides are being made.

Miller has compiled the menstrual records of 100 married women in averaged and varied conditions of health, life and parentage with convincing results. He has shown that from 85 to 92 per cent of all women menstruate with sufficient regularity to use the natural method with confidence.

Miller states that the total number of menstruations in his studies and conclusions is about 5,000.

Reiner, in a study of 2,000 women with about 20,000 menstruations, kept accurate records from 8 months to several years and indicates very much the same percentages as Miller—less in some and more in other groups. Inasmuch as most women will have a larger variation one month followed by a smaller variation the next month, it is good judgment to divide the total variations by 2 for the average. On this point Reiner makes the following statement:

"When the number of days of the total variation of these cycles is divided by 2, it is to be seen that about 90% of these women do not vary more than 4 days from the cycle being the apparent norm. *It is therefore evident that approximately 90% of all adult normal and healthy women can make use of natural conception control.*"

Will the proof be strengthened? It undoubtedly will. Within another five or ten years, many, and perhaps all, of the chief problems still requiring solution probably will be solved.

Ye Merry Custom of Sterilization

We have to suspend judgment while the grand old custom of sterilization, as California practices it, goes on trial in the courts. Of course, none of the thousands of defenseless poor people who have been sterilized in that state in the past few years have ever financed any actions for conspiracy to commit mayhem. It has remained for a scion of wealth, an alleged victim, to challenge the sweet-smelling system.

It is beside the point to deny that sterilization is on trial in California on the ground that a distinction must be made between legalized sterilization in public institutions and privately arrived at affairs. The issue of the case at the bar will affect all styles of sterilization in that happy state, where, we are willing to admit, the advocates of sterilization have met with their greatest temptation to geld and spay.

Said the judge who presided at the first hearing of the case in San Francisco: "The necessity and the desire to bear children is something not idly to be interfered with . . . If there is a general permission, as a result of private investigations, to sterilize anybody and everybody, it is immediately clear this would lead to abundant abuses."

We carry on such practices determinedly and inexorably, and justify them fanatically on all sorts of plausible grounds, over long periods of time, and then perhaps somebody discovers that deficiency of vitamin B accounts for the phenomena that we seek to abate by the *force majeure* of the knife.

We used to believe that tuberculosis was hereditary. Then we discovered that it was the unhygienic habits of families that were inherited.

Feeble-mindedness may very well furnish a dietary analogy. Of course, in that case, the progeny of parents both of whom are feeble-minded would be doubly sure to be feeble-minded, for obvious reasons having nothing whatever to do with heredity.

We speak of the abuses of sterilization. Is sterilization itself, in the main, an abuse?

Correspondence

My Lady Nicotine

To the Editor of THE MEDICAL TIMES:

As I did not see the letter of the chemist of the Philip Morris Company, Mr. Willard F. Greenwald, until it appeared in print, this is the first opportunity I have had to answer him. The distinction made by Mr. Greenwald between ethylene glycol and diethylene glycol, as an anti-freeze, is so very minor that it requires no comment. The gas I had in mind is hydra-headed. To present my case I will first quote a few abstracts from the official advertising leaflets sent out by the manufacturers of diethylene glycol, The Carbide and Carbon Chemical Corporation, New York.

ABSTRACTS: Leaflet (35) "Diethylene glycol is similar in many respects to ethylene glycol but is sufficiently individual to find special uses in the chemical industry. It has much better solvent power than ethylene glycol or glycerine, being a solvent for nitro-cellulose, resins, oils, and many other organic compounds." Leaflet (36) "It is also used as an anti-freeze." Leaflet (36) "The properties of diethylene glycol are given in: Properties of Diethylene Glycol, Wm. H. Rinkenbach, Ind. Eng. Chem. 19, 474, 1927."

Leaflet (36) "Use of Diethylene Glycol in Explosives." "Upon nitration diethylene glycol yields the dinitrate, which is becoming an important constituent of explosives. Diethylene glycol dinitrate which freezes at —11.3° C. is compared with nitro-glycerine which freezes at 13° C. Diethylene glycol dinitrate is described in the following: Preparation and Properties of Diethylene Glycol Dinitrate, Wm. H. Rinkenbach, Ind. Eng. Chem. 19, 925, 1927."

The first question I would like to ask Mr. Greenwald is: (a) What percentage of potassium nitrate is used in the formula of Philip Morris cigarettes? (b) What means are taken to prevent nitration and nitrous gas when the ignition of the cigarette reaches the flash point (Leaflet 34) of diethylene glycol, which is officially given as 124 C. (255.2 F.)? (c) What is the distance from the high ignition point of a cigarette, temp. 400 F. +, to the flash point of diethylene glycol, temp. 255.2 F.?

Second question: If you made a reverse change of formula and did not use the nitrate, what percentage of diethylene glycol would you use to insure continuous ignition?

Another hydra-head of the gas is carbon monoxide. CO is in the smoke of every cigarette. Cigarette research workers usually consider, as most important, the excess in the first half. By my tests, Philip Morris does not by any means show the most carbon monoxide in the smoke; but it does show the most heat generated in combustion. I have devised a simple test, which is very unique, to prove this statement.

I cannot state too emphatically that all cigarette analysis is completely dominated by the moisture content. Advertising agents call it "freshness," and it is a fact that absence of moisture completely "kills" a cigarette, taking all the "kick" out of it. In addition, it completely changes the entire chemical picture. I am surprised that not one of the tobacco chemists has thought of the easy way this loss of moisture could be markedly retarded.

My position in this matter is strictly a scientific one and absolutely devoid of rancor or antagonism toward Philip Morris or any other brand of cigarette. If, however, the cigarette manufacturers and their advertising agents are going to enter the fields of medicine and of health, it is time for the physicians to give serious thought to the subject and check their claims against demonstrable facts. This is true whether the appeal is made through medical journals or if the other side of the street is worked with a patent medicine ballyhoo.

Sincerely yours,

P. CHARLES GREEN.

Note: Nitration—(Standard) "The reaction by means of which the radical nitryl (NO_2) is introduced into a compound so it combines directly, by means of its nitrogen, with carbon."

Philadelphia, March 10, 1936

River Sewage Pollution of Water Supplies

To the Editor of MEDICAL TIMES:

When a news item appearing in several hundred daily papers sets forth the fact that about one person in five in a community of eleven thousand people is suddenly stricken with violent illness the public is apt to be amazed as well as interested. That incident recently happened in a city of Ohio.

The city is situated in a prairie region close to the banks of a river. Its water supply is obtained from artesian wells. These are fed by storm waters that sink through porous topsoil until they reach an impervious stratum.

Recently a flood in the river was high enough to invade the artesian wells and the outbreak of illness, enteric in character, followed. An analysis of the water showed that it was polluted. A bacillus thought to be one of the forms of colitis was present, among others. Will typhoid follow?

A century or more ago filtered river water in such communities was the rule, and it was not then especially unsafe. With the rapidly increasing density of population every river has become a sewer. Filtration may remove inorganic matter but it does not remove the germs that breed disease. Nothing short of the chemical treatment of water supplies will prevent the repetition of the situation in Ohio. We have reached the condition where public sentiment is willing to admit the necessity of sterilizing water supplies after they have been contaminated. We do not realize yet that it is better to sterilize house drainage and refuse matter before it pollutes the water we drink. In time we shall come to that method.

A study of death rates of eighty-six cities reveals instructive facts concerning the relation of the rates to the character of the water supplies. In 1935—that year will answer as well as any other—the rate for all was 11.4 per thousand of population. In half a score of municipalities using river water the rate was about one-fourth greater. In more than a dozen cities employing sterilization of the water supply the death rate is materially lower than that of the average. The chlorine treatment of potable waters is safe and inexpensive. It saves human lives.

JACQUES W. REDWAY.

An Interesting Diagnostic Test in Saint Olaf's Saga

To the Editor of THE MEDICAL TIMES:

My attention was recently called by Dr. A. N. Rygg, president of the Norwegian Hospital, Brooklyn, to a passage in an old Norse saga referring to surgery in the viking age which contains an account of an interesting diagnostic test—interesting intrinsically, and also on account of the time and place. The passage is in the *Heimskringla, Saint Olaf's Saga,* Chapter CCXLVI. It tells how, during the battle of Stiklestad, which took place in A. D. 1030, one Thormod Kolbrunarscald was "struck by an arrow in his left side; but he broke off the shaft of the arrow, and went out of the battle, and up toward the houses . . . and entered into a chamber apart in which were many wounded men, and with them a woman binding their wounds. There was a fire on the floor, at which she warmed water to wash and clean their wounds. Thormod sat himself down beside the door, and one . . . looked at him and said, 'why art thou so pale? Art thou wounded? Why dost thou not call for the help of the wound healers?' . . . Then Thormod stood up and went toward the fire and stood there awhile. The young woman said, 'dreadfully pale is this man—why art thou so?' Then Thormod sang:

'A fine ground arrow in the swirl
'Went through me, and I feel the dart
'Sits, lovely girl, too near my heart.'

The girl said, 'Let me see the wound, and I will bind it.' Thereupon Thormod sat down, cast off his clothes, and she saw his wounds, and examined that which was in his side, and felt where the iron had gone in. In a stone pot she stirred together leeks and other herbs, and boiled them, and gave the wounded man of it to eat, by which she discovered if the wound had penetrated the belly, for if the wound had gone so deep, it would smell of leek."

March 10, 1936. EDWARD E. CORNWALL, M.D.

Books received for review are acknowledged promptly in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS. A Handbook for Practitoners, a Text-Book for Students, Nurses and Social Workers. By John B. Hawes, 2d, M.D. & Moses J. Stone, M.D. Philadelphia, Lea & Febiger, [c. 1936]. 215 pages, illustrated. 8vo. Cloth, $2.75.

DOCTOR OF THE NORTH COUNTRY. By Earl Vinton McComb, M.D. With a preface by Logan Clendening, M.D. New York, Thomas Y. Crowell Company, [c. 1936]. 238 pages. 8vo. Cloth, $2.00.

DISEASE AND DESTINY. By Ralph H. Major, M.D. With a preface by Logan Clendening, M.D. New York, D. Appleton-Century Company, [c. 1936]. 338 pages, illustrated. 8vo. Cloth, $3.50.

THE SCIENCE AND ART OF NURSING. By Ella L. Rothweiler, R.N. Edited by Jean Martin White, R.N. Philadelphia, F. A. Davis Company, [c. 1935]. 1196 pages, illustrated. 8vo. Cloth, $3.00.

CLINICAL MISCELLANY. Volume II, 1935. The Mary Imogene Bassett Hospital, Cooperstown, New York. Springfield, Charles C. Thomas, [c. 1935]. 217 pages, illustrated. 8vo. Cloth, $3.00.

BIOLOGISCHE UNTERSUCHUNGEN UBER FARBSTOFFE. By Dr. Iwao Matsuo. Volume 2. Kyoto, [c. 1935]. 1046 pages. 4to. Cloth.

YOUR CHILD IN HEALTH AND IN SICKNESS. By Hugh L. Dwyer, M.D. New York, Alfred A. Knopf, [c. 1936]. 333 pages, illustrated. 8vo. Cloth, $2.75.

THE 1935 YEAR BOOK OF GENERAL SURGERY. Edited by Evarts A. Graham, M.D. Chicago, The Year Book Publishers, Inc., [c. 1936]. 838 pages, illustrated. 12mo. Cloth, $3.00.

LUFTWEGE, MUND UND OHR. Diagnostik in Tabellenform. By Dr. Alexander Cemach. Wien, Wilhelm Maudrich, [c. 1936]. 132 pages, illustrated. 8vo. Cloth, RM. 20.

LOBAR PNEUMONIA AND SERUM THERAPY. With Special Reference to the Massachusetts Pneumonia Study. By Frederick T. Lord, M.D. and Roderick Heffron, M.D. New York, The Commonwealth Fund, [c. 1936]. 91 pages, illustrated. 8vo. Cloth, $1.00.

VITAMINS IN THEORY AND PRACTICE. By Leslie J. Harris, Sc.D. New York, The Macmillan Company, [c. 1935]. 240 pages, illustrated. 8vo. Cloth, $3.00.

LENGTH OF LIFE. A Study of the Life Table. By Louis I. Dublin, Ph.D., & Alfred J. Lotka, D.Sc. New York, The Ronald Press Company, [c. 1936]. 400 pages. 8vo. Cloth, $5.00.

DAS HAMORRHOIDALLEIDEN. Seine Komplikationen und Deren Behandlung. By Dr. Kasper Blond and Dr. Herbert Hoff. Wien, Franz Deuticke, [c. 1936]. 121 pages, illustrated. 4to. Paper, M. 12, Bound M. 14.40.

A MANUAL OF THE COMMON CONTAGIOUS DISEASES. By Philip Moen Stimson, M.D. Second Edition. Philadelphia, Lea & Febiger, [c. 1936]. 437 pages, illustrated. 12mo. Cloth, $4.00.

YOU MUST EAT MEAT. Fancies, Foibles and Facts about Meat. By Max Ernest Jutte, M.D. New York, G. P. Putnam's Sons, [c. 1936]. 164 pages. 12mo. Cloth, $2.00.

SOCIAL SECURITY. By Edward H. Ochsner, M.D. Chicago, The Social Security Press, [c. 1936]. 231 pages. 8vo. Cloth, $.50.

NUTRITIONAL CHARTS. Prepared expressly for medical, dental and dietetic specialists by the staff of the Research Department of H. J. Heinz Company. Second edition, [c. 1935]. Obl. 8vo. (Copies of this publication will be sent gratis to all medical, dental dietetic and food specialists upon direct request to H. J. Heinz Company, Pittsburgh, Pa.)

THE 1935 YEAR BOOK OF PEDIATRICS. Edited by Isaac A. Abt, M.D. Chicago, The Year Book Publishers, Inc., [c. 1936]. 520 pages, illustrated. 12mo. Cloth, $2.25.

A TEXTBOOK OF ROENTGENOLOGY. The Roentgen Ray in Diagnosis and Treatment. By Bede J. Michael Harrison, M.B. Baltimore, William Wood & Company, [c. 1936]. 826 pages, illustrated. 8vo. Cloth, $10.00.

DELAFIELD AND PRUDDEN'S TEXT-BOOK OF PATHOLOGY. Revised by Francis C. Wood, M.D. Sixteenth edition. Baltimore, William Wood & Company, [c. 1936]. 1406 pages, illustrated. 8vo. Cloth, $10.00.

WHY BRING THAT UP? A Guide to and from Seasickness. By Dr. J. F. Montague. New York, The Home Health Library Inc., [c. 1936]. 130 pages, illustrated. 8vo. Cloth.

DENTAL INFECTION AND SYSTEMIC DISEASE. By Russell L. Haden, M.D. Second edition. Philadelphia, Lea & Febiger, [c. 1936]. 163 pages, illustrated. 8vo. Cloth, $2.50.

THE PHENOMENA OF LIFE. A Radio-Electric Interpretation. By George Crile. New York, W. W. Norton & Company, Inc., [c. 1936]. 379 pages illustrated. 8vo. Cloth, $3.50.

PRACTICAL ASPECTS OF PSYCHOANALYSIS. A Handbook for Prospective Patients and Their Advisors. By Lawrence S. Kubie, M.D. New York, W. W. Norton & Company, Inc., [c. 1936]. 223 pages. 8vo. Cloth, $2.00.

AN INTRODUCTION TO SURGERY. By Rutherford Morison, M.D. & Charles F. M. Saint, M.D. Third edition. Baltimore, William Wood & Company, [c. 1935]. 367 pages, illustrated. 8vo. Cloth, $5.00.

LECTURES ON DISEASES OF CHILDREN. By Robert Hutchison, M.D. Seventh edition. Baltimore, William Wood & Company, [c. 1936]. 452 pages, illustrated. 8vo. Cloth, $6.75

AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS. By various Writers. Edited by Herbert French, M.D. Fifth Edition. Baltimore, William Wood & Company, [c. 1936]. 1145 pages, illustrated. 4to. Cloth, $16.00.

SYNOPSIS OF CLINICAL LABORATORY METHODS. By W. E. Bray, M.D. St. Louis, The C. V. Mosby Company, [c. 1936]. 324 pages, illustrated. 12mo. Cloth, $3.75.

Contemporary Progress

(Concluded from page 123)

mild nephritis, and two others a purpura, but there were no severe toxic symptoms. The syphilitic lesions, especially in infants, healed promptly; interstitial keratitis in older children responded most slowly. A follow-up of 61 patients showed negative blood reactions in 61 per cent., and a marked attenuation in 24 per cent. Clinical relapse occurred in less than 1 per cent. of the patients. The author is convinced that bismuth arsphenamine sulfonate is superior to all other antisyphilitic drugs for the treatment of congenital syphilis.

The Antirachitic Value of Irradiated Evaporated Milk and Irradiated Whole Fluid Milk in Infants

M. Rapoport and J. Stokes, Jr. (*Journal of Pediatrics*, 8:154-160, February, 1936), report a study of 10 infants receiving irradiated evaporated milk, and 9 infants irradiated whole milk as the sole source of vitamin D. The 10 infants in the first group were in the wards of the hospital (Children's Hospital of Philadelphia) for the entire period of study; of the 9 infants in the second group, 4 were in the wards for the entire period and 5 for only two months, 3 of whom continued the use of the irradiated milk as out-patients. The irradiated evaporated milk contained 125 U.S.P. units per 14.5 ounce can, the irradiated whole milk 140 U.S.P. units per quart. Of the 10 infants given the evaporated milk, 2 had shown questionable rachitic bone changes (on roentgenographic examination) at the beginning of the study, and 8 were free of rickets; all were non-rachitic after one month and remained so throughout the period of observation (four and a half months). Of the 9 infants given the whole milk, the 4 ward patients, and 4 of the 5 who left the hospital after the second month were and remained free from rickets. One infant who was in the ward at first and later an outpatient showed mild rickets at the beginning of the study; healing began in thirteen weeks and was complete after eighteen weeks. The authors conclude that the irradiated whole milk and the irradiated evaporated milk are equally effective in the prevention of rickets, the slight difference in vitamin D content being unimportant. The slow healing of the rickets in one patient taking the irradiated whole milk indicates, as shown in the authors' previous studies, that a milk containing the minimum vitamin D sufficient to protect most infants acts only as a slow, and therefore unsatisfactory, healing agent.

MEDICAL BOOK NEWS

Edited by TASKER HOWARD, M.D.

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CLASSICAL PARAGRAPH

William Beaumont
1785-1853

I consider myself but a humble inquirer after truth—a simple experimenter. And if I have been led to conclusions opposite to the opinion of many who have been considered the great luminaries of physiology, and, in some instances, from all professors of this science, I hope the claim of sincerity will be conceded to me, when I say that such difference of opinion has been forced upon me by the conviction of experiment, and the fair deductions of reasoning.

William Beaumont. From the introduction to "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." Printed by F. P. Allen, Plattsburgh, 1833.

A New Edition of Joslin

THE TREATMENT OF DIABETES MELLITUS. By Elliott P. Joslin, M.D. Fifth edition, revised and rewritten. Philadelphia, Lea & Febiger, [c. 1935]. 620 pages, illustrated. 8vo. Cloth, $6.00.

The medical world is once more favored with a new edition, the fifth, of this great encyclopaedic volume on the subject of diabetes mellitus by Elliott P. Joslin and his collaborators, Howard F. Root, Priscilla White, and Alexander Marble. Perusal of this book will easily convince the reader that it still retains its enviable status as the foremost authority on the subject in the English language. The entire field, covering etiology, treatment, complications including pregnancy, surgery, tuberculosis, blood dyocrasias, cardio-vascular, digestive, nervous, and genito-urinary diseases, is adequately and lucidly covered.

Especially commendable are the chapters on Physiology, Diabetes in Childhood, and the contribution of Shields Warren under Pathology.

This work should have a place as a reference book in the library of every physician interested in the disease.

GEORGE E. ANDERSON.

Rosenau's Latest Edition

PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Rosenau. Sixth edition. New York, D. Appleton-Century Company, [c. 1935]. 1481 pages, illustrated. 8vo. Cloth, $10.00.

The advances in the field of preventive medicine have been so rapid that a revision of Rosenau's work on this subject became necessary; hence the sixth edition recently published.

Much of the subject matter has been revised. In the group of infectious diseases—tuberculosis, diphtheria, Vincent's angina, measles, scarlet fever and undulant fever have been supplemented by considerable new material. New concepts with respect to insect borne diseases have required re-writing of this topic.

Venereal diseases today assume a very important place in public health campaigns; consequently the revision of the text on this subject is timely. The correlative subject of sex hygiene is more fully treated and an entirely new chapter on contraception appears.

Deficiency diseases in the truest sense are preventive and the author properly groups scurvy, rickets, pellagra, beriberi and goiter with a separate discussion on the subject of vitamins.

Heart disease as such is given consideration for the first time, which is proper in view of the fact that it takes first rank among the causes of death. The importance of maternal mortality is recognized by a special chapter.

In this edition the standard grouping of the communicable diseases has been continued in the consideration of their prevention, viz. (a) those spread through mouth and nose discharges; (b) those spread through alvine discharges; (c) those that are insect-borne; and (d) all others in a miscellaneous group. Diseases classified as miscellaneous, such as chicken pox, encephalitis, poliomyelitis and psittacosis, merit a place in the respiratory group as much as some there included.

This standard text-book should be in the library of every general practitioner to whom the practice of preventive medicine is of daily concern.

A. E. SHIPLEY.

Technique for Thoracic Roentgenology

APPARATUS & TECHNIQUE FOR ROENTGENOGRAPHY OF THE CHEST. By Charles Weyl and S. Reid Warren, Jr. Springfield, Charles C. Thomas, [c. 1935]. 166 pages, illustrated. 8vo. Cloth, $5.00.

This is a presentation of the authors' ideas on the proper apparatus and technic for the production of roentgenograms of the chest.

The subject matter is treated in a scientific way from the viewpoint of the physicist but it is rather above the comprehension of the average medical roentgenologist.

It is perhaps of interest that the suggested technic is markedly different from any used by most recognized roentgenologists.

The book may be of service to those desiring a technical study of how to make a chest roentgenogram and what occurs while it is being made.

CHARLES EASTMOND.

Surgery from the Joseph Price Hospital

PRACTICAL SURGERY OF THE ABDOMINAL AND PELVIC REGIONS. By James W. Kennedy, M.D. Second edition. Philadelphia, F. A. Davis Company, [c. 1934]. 861 pages, illustrated. 8vo. Cloth, $7.50.

This volume of 861 pages and 133 half-tone plates appears as the second edition. It is essentially a resumé of the teachings of Dr. Joseph Price, who after having worked in the Philadelphia Dispensary in 1877, laid the first stepping stone toward a magnificent career, during which he successfully established and maintained the Joseph Price Hospital in the same city. Dr. Price died in 1911. Dr. James William Kennedy, the author of this book, was for many years associated with Dr. Price. Dr. Kennedy is at present Surgeon-in-Chief of the Joseph Price Hospital.

The presentation of the subject of Abdominal Surgery which constitutes the contents of this book is unique. For instance, the chapter on Vaginal Hysterectomy includes all of the gross pathological conditions of the Uterus including Malignancy. Following a discussion of the indications for operation and the various conditions for which this operation is done and the complications and after care, there follows a series of plates, over thirty in number illustrating the procedure. Opposite each plate there is a page of description of the maneuver illustrated.

The teachings do not coincide in many instances with those generally accepted today. It is because the author has been a witness to the success of the procedures, however, that he presents them so forcibly. The radical operation for general Peritonitis is urged. Inch by inch the intestine is withdrawn from the abdominal cavity and the adhesions broken up. Dr. Kennedy still feels that there is a place for Peritoneal lavage. He is a sturdy advocate of the Cholecystostomy rather than Cholecystectomy. He argues that those of the "Ectomy" school often are forced to leave in with good after results a badly diseased gall bladder, which is too seriously involved to be taken out. While the gall bladders which are easily accessible and not much involved are uniformly removed. He feels that this group presents more untoward post operative symptoms than do the "Ostomy" group. The discussion of Inguinal Hernia leaves no doubt in the reader's mind that the author thinks it destructive surgery to transplant, or even disect the vas deferens. The book is replete with similar teachings. All ultra means of diagnosis are ignored. The importance of clinical signs and history which are always available to the examining doctor is stressed. Simplicity is the key note of the entire book. Simplicity also reigns supreme in operative technique. The procedures are done with the least number of instruments and the fewest maneuvers. This does not mean hasty operations. It means time-saving technique. The reviewer has enjoyed reading this book from cover to cover. He doesn't agree with all of the teachings. He admires the courage of Dr. Kennedy's convictions. He highly recommends this book to every abdominal surgeon.

MERRILL N. FOOTE.

The Beginnings of Behavior

BEHAVIOR DEVELOPMENT IN INFANTS. A Survey of the Literature on Prenatal and Postnatal Activity 1920-1934. By Evelyn Dewey. New York, Columbia University Press, [c. 1935]. 321 pages, 8vo. Cloth, $3.50.

This book presents a survey of the literature on prenatal and postnatal activity from 1920-1934. The review is divided into 5 parts.

Part 1. Growth processes. For purposes of this summary behavior is defined as the neuromuscular and glandular reactions of living human organisms. In the behaviorist theory use is made of the reflex-arc principle namely, that growth takes place by a process of expansion from the simple to the complex. A conditioning process occurs resulting gradually in more complex behavior as the number of conditioned associations increases. Pavlov has contributed the scientific support for this view. The Gestalt Theory goes to the opposite extreme. Here growth or learning proceeds from the whole to the part. Behavior according to the Gestalt School is more than a primitive stimulus and response mechanism but it is rather the ability to perceive the stimulus as a whole and in relation to the needs of the organism. The most recent work in neurology and physiology bears general agreement with the Gestalt School of Psychology in that it is held "that specific reactions evolve from primitive total body responses, by a process of differentiation in the nervous system corresponding with its increasing maturation." This concept is called the organismic functioning of the nervous system. There is presented a great amount of experimental work with animals as a result of which one may conclude that the course of the growth of fetal behavior as well as in the newborn will be shown to correspond closely to the development in animals.

Part 2. Behavior of the human fetus. Experiments are presented on human fetuses with the following conclusions: 1. At the time of birth the human fetus has developed a great number of responses carried over from fetal life. 2. The plantar reflex has been especially worked out by Minkowski. 3. Spontaneous movements of operatively removed fetuses occur at about the end of the second month of pregnancy. 4. Tonic neck and labyrinth reflexes occur about the end of the third month. 5. Some types of behavior may be said to have completely developed in utero, others have begun in utero and reached different levels of growth at birth, while still other types develop after birth for the first time.

Part 3. The neonatal period covers the period after birth until the umbilicus is healed, roughly from 10 to 14 days. Here again a mass of experimental evidence is presented with a few conclusions. 1. There are individual differences in the newborns which cannot be explained by differences in the age of the fetuses at birth. Development proceeds in a cephalo-caudal direction and becomes markedly differentiated within a few days after birth. 2. There is no sharp developmental break between fetal and neonatal life.

Part 4. Behavior during infancy. As previously indicated the major portion of this part is devoted to presentation of experimental data by various investigators. In summation stress is laid on the enormous growth and increasing complexity in behavior that takes place during this period. The author points out the gaps in the studies of this period and what further data are required.

Part 5. This portion concludes the book. It deals with a summary of the preceding chapters together with the author's conclusions.

This book is invaluable to those interested in the subject of the development of behavior in infants. It has an extensive bibliography and is well organized in its content matter. The reviewer recommends it most highly.

STANLEY S. LAMM.

Corrective Gymnastics

INDIVIDUAL EXERCISES. Selected Exercises for Individual Conditions. By George T. Stafford, M. S., Harry B. DeCook, M. A., and Joseph L. Picard, M. S. New York, A. S. Barnes & Company, [c. 1935]. 111 pages, illustrated. 8vo. Paper, $1.00.

This book should be a good guide to those prescribing individual exercises for physical defects and deformities. The major portion of this book is devoted to Orthopedic systematic exercises, and the remainder deals with several medical problems requiring outlined systems of exercises. There are one hundred terms applied to the descriptions of exercises with "stick men" illustrations. Each illustration includes the position and the action of the individual. Some of the terms used are very amusing.

Sets of exercises are advocated for various defects and deformities in the same manner as football signals.

To prescribe accurately, this book would be of great

value as a handy reference to physiotherapists and physical directors as well as to the orthopedist.

JOSEPH I. NEVINS.

Allergy for the Dermatologist

KLINIK UND THERAPIE DER ALLERGISCHEN KRANKHEITEN. By Dr. Erich Urbach. Wien, Wilhelm Maudrich, [c. 1935]. 781 pages, illustrated. 8vo. Cloth, RM 30.

The author has written this book in an effort to satisfy the need of the practitioner for a comprehensive text book in the German language on allergic diseases. While he aims to avoid too profound and abstract theoretical discussions of the subject, he tries to supply a sufficient consideration of it to the physician to provide the groundwork for the proper management of allergic diseases. The European and American Literature on the subject has been covered and abstracted with this aim in view.

The first half of the book is devoted to theoretical considerations of the subject of Allergy. There are chapters on Hyper- and Hyposensitiveness, Experimental Anaphylaxis, Antigens, Antibodies, The Chemistry of Allergy, Testing for Allergy, The Preparation of Extracts, Anti-Allergic Therapy and other subjects. The second half deals with the consideration of clinical conditions from the allergic viewpoint. There are lengthy discussions on angioneurotic edema, asthma, eczema, hay fever, urticaria, ophthalmic allergy, migraine, arthritis, allergy in infectious diseases, physical allergy, allergy of the various systems of the body, and allergic diseases in animals.

The author is a dermatologist and his primary interest in this aspect of the subject is apparent from cover to cover. Throughout the book are about 300 illustrations, a large majority of which are photographs of cutaneous disorders in relation to allergy. In short the work represents a survey of the entire subject of allergy as a dermatologist sees it.

MATTHEW WALZER.

Concerning Roentgen Pelvimetry

THE OBSTETRIC PELVIS. By Herbert Thoms, M.D. Baltimore, Williams & Wilkins Company, [c. 1935]. 115 pages, illustrated. 8vo. Cloth, $2.50.

Concise and clear, this little book fills a real need. For some time obstetricians have been familiar with the epoch making contributions of Thoms in the comparatively new field of pelvic roentgenometry. The importance of accurate knowledge of the capacity of the pelvis is obvious. Not very difficult, requires no great expense, and more than reasonably accurate, it seems as if Thoms is right—it will not be long before obstetricians at least will make routine roentgen pelvimetry a part of the antepartum examination of every primipara. As a guide to those who consider such a program this book will be invaluable.

CHARLES A. GORDON.

English Therapy

MODERN TREATMENT IN GENERAL PRACTICE. Edited by Cecil P. G. Wakeley, D.Sc. Volume II. Baltimore, William Wood & Company, [c. 1935]. 382 pages, illustrated. 8vo. Cloth, $4.00.

The first volume of these collections of reprints from the Medical Press and Circular was reviewed in these columns about a year ago. The second volume presents forty similar papers and includes contributions from a number of writers who are much better known on this side of the Atlantic. They are addressed to the general practitioner and offer authoritative, if rather sketchy advice, on the treatment of various common conditions.

TASKER HOWARD.

The Spinal Fluid

THE CEREBROSPINAL FLUID AND ITS RELATION TO THE BLOOD A PHYSIOLOGICAL AND CLINICAL STUDY. By Solomon Katzenelbogen, M.D. Baltimore, Johns Hopkins Press, [c. 1935]. 468 pages. 8vo. Cloth, $5.00.

This work is a voluminously comprehensive and critical analysis of the world literature relating to the subject. It presents the latest investigative results and more current interpretation of experimental and clinical aspects of cerebrospinal fluid and blood, specifically in relation to the hemato-encephalic barrier, much of which has been furnished by Dr. Katzenelbogen. Despite many contradictory investigations concerning similar subjects the author has remained non-partisan in his book directed towards the assembly of all material and the stimulation of further research. Such material has not been assembled in a single volume since 1924 and will be of interest to anyone concerned with the treatment and diagnosis of brain and nervous disease.

IRVING M. DERBY.

Reliable Dietetic Advice for the Layman

STREAMLINE FOR HEALTH. By Philip B. Hawk, New York, Harper & Brothers, [c. 1935]. 186 pages, illustrated. 8vo. Cloth, $2.50.

The discussion of foods has lost much of its dignity because of its constant radio burlesquing by such self-styled food specialists as Alfred McCann and John Loughran. Moreover, the Consumer's Research and Schlink have scared the public with their sensational exposes. It is therefore welcome news to find a recognized food authority come to the rescue of the misguided layman with a popular book on foods and reducing.

The physician can well surmise the topics that are discussed. No reducing diet is reliable unless expressed in terms of calories. Then again beer is an anxious topic; also, the Hay diet and the Hollywood diet, and dinitrophenol, and the familiar nostrums. Towards the end of the book there are typical questions and answers on this disturbing subject, as well as the usual food, calorie, and weight tables. All in all, it is a book that is well written, authoritatively presented, and should win favor among those who are looking for truthful facts.

EMANUEL KRIMSKY.

Neurology for the Legal Profession

NERVOUS AND MENTAL DISEASES. A simplified and comprehensive presentation of nervous diseases and insanity. By Bernard S. Maloy, M.D. Indianapolis, Bobbs-Merrill Company, [c. 1935]. 551 pages, illustrated. 4to. Cloth, $7.50.

This book of some five hundred pages, written by a Chicago physician specializing in forensic medicine, is designed for the layman, especially of the legal profession, as an aid to the preparation of cases in litigation. For this reason, not much space is devoted to the discussion of the anatomy, pathology or histology of the nervous system, emphasis being chiefly laid upon etiology and symptomatology. The author states in the introduction that his object has been to shorten and simplify each subject; in other words, it is not an unfair criticism to state that the work is a sort of sublimated compendium of nervous and mental disorders without pretense to original scientific research or based upon the author's own experience, but is to be regarded merely as a useful guide in furnishing information of a rather superficial nature for the reader who is virtually without previous knowledge of the subject. An excellent feature of the book, one that is often omitted in works of a similar nature, is a careful definition of every new term introduced in the description of the various diseases under discussion. The book is profusely illustrated and has an excellent index.

F. C. EASTMAN.

A New Edition of Boyd's Clinical Pathological Work

THE PATHOLOGY OF INTERNAL DISEASES. By William Boyd, M.D. Second edition. Philadelphia, Lea & Febiger, [c. 1935]. 904 pages, illustrated. 8vo. Cloth, $10.00.

This volume filled a unique niche on its first appearance. The second edition represents an improved and modernized version. The author has the happy faculty of expressing the facts of pathology in dynamic and picturesque form. Facts are more palatable when flavored with the verbal dressings supplied by Dr. Boyd. It is this fact, no doubt, that has made the work so popular with practitioners and medical students. Among the numerous texts dealing with surgical pathology, this presentation of internal diseases provides an essential link between academic pathology and clinical medicine. It commends itself not only to the internist but also to the surgeon.

Concise and devoid of theoretical labyrinths, the book nevertheless indicates the mooted questions of pathology

in a broad scope. This is well illustrated by the section on status lymphaticus where the oratorical negativism of Greenwood and Woods is balanced by the factual contributions of Symmers.

There are a number of additions to the original text, particularly in the field of occupational diseases, the diseases of lipoid metabolism and the reticulo-endothelial system. Careful and sane choice of reference material is especially evident and forms a valuable feature of the work.

A happy decision to continue the historical aspects of presentation has enhanced the second edition as it made the first distinctive. Within the scope of less than one thousand pages, Dr. Boyd has built a monumental contribution to the popularizing of pathology among clinicians. New and additional illustrations of high quality illuminate the text. The publishers have provided a readable page both as regards quality of paper and form of type.

The reviewer does not seek the fly-speck on the statue of Phidias, but the proof reading of the text is not without error. Thus, we find on page 151, line 5: "in lobar pneumonia there is no necrosis of the valvular walls." In the first edition, page 159, line 11, this idea is expressed: "in lobar pneumonia there is no necrosis of the alveolar walls." Proof reading is notoriously a dry and difficult labor. It should be especially free of error in a work of this type.

"The Pathology of Internal Diseases" has merited a high place in the Anglo-Saxon medical literature. It can be recommended sincerely to all members of the profession and seems to justify that much-abused phrase: no clinician can afford to remain ignorant of its content.

EMIL F. KOCH.

Silicosis Up to Date

THE PNEUMONOKONIOSES (SILICOSIS) LITERATURE AND LAWS OF 1934. By George G. Davis, M.D., Ella M. Salmonsen, and Joseph L. Earlywine. Chicago, Industrial Medicine, [c. 1935]. 490 pages. 8vo. Cloth, $10.00.

This is the second volume on the subject published by these authors. In the previous edition, bibliography and laws relating to the subject were fully described.

In this present volume, the authors have gathered the literature of this important subject to date (1934).

Abstracts of the articles published throughout the world with the literature has been assembled and for any one interested in the subject of industrial medicine or diseases of the chest, this volume will prove both stimulating and a source of reference.

In view of the change in the occupational disease law in the State of New York the volume should likewise find usefulness to the general practitioner and students of internal medicine.

IRVING GRAY.

Character and the Endocrines

GLANDS AND EFFICIENT BEHAVIOR. By Florence Mateer, Ph.D. New York, D. Appleton-Century Company, [c. 1935]. 243 pages. 8vo. Cloth, $2.50.

An important contribution by an eminent psychologist to the behavior problems, especially in children. The endocrine aspects were studied in close cooperation with several endocrinologists who advised the necessary organotherapy while the effects on behavior were checked by the author by means of exact psychological methods. Dr. Mateer reports truly encouraging results which should induce other psychologists, educators and physicians to direct further studies along similar lines.

MAX A. GOLDZIEHER.

A New Edition on Infant Feeding

INFANT NUTRITION. A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott, M.D. Second edition. St. Louis, C. V. Mosby Company, [c. 1935]. 431 pages, illustrated. 8vo. Cloth, $4.50.

This second edition represents a complete revision of the edition published five years ago. Certain chapters, as for example, the one on vitamins, have been almost completely rewritten. The size of the book has been somewhat decreased without interfering with its usefulness. This has been accomplished by avoiding repetition, and by omitting material which more properly belongs in general textbooks on Pediatrics. The subjects of Acidosis, Alkalosis and Anhydremia have been treated in the chapters on Diarrhoea and Vomiting. A chapter on Allergy has been added.

The type is good and makes for easy reading. There are few controversial matters dealt with, and for this reason, for the physician who is not an expert in this line, it should constitute a court of last resort for deciding uncertain points about nutrition.

This book is heartily endorsed and recommended.

ARCHIBALD D. SMITH.

Hyperthermia in Paresis

ELECTROPYREXIA IN GENERAL PARALYSIS. By Leland E. Hinsie, M.D., & Joseph R. Blalock, M.D. Utica, State Hospitals Press, [c. 1934]. 90 pages, illustrated. 8vo. Cloth, $1.25.

This book is divided into two parts. The first is a review of the literature on Electropyrexia with reference to methods used, physiological and bio-chemical reflects on the patient and the effect upon the invading organism and the clinical and laboratory findings after treatment of cases of general paralysis. Part two deals with the ultra high frequency machine as used at the New York Psychiatric Institute and Hospital for the treatment of general paralysis for a period of about three and one-half years. The machine and technique are described and a comparison made of clinical and laboratory observations before and after treatment. It should be an interesting aid to any student of heat in the treatment of disease, particularly neurosyphilis.

A. E. SOPER.

In Lighter Vein

IT MUST BE YOUR TONSILS. By Kenneth Roberts. Garden City, Doubleday, Doran & Co., Inc., [c. 1936]. 70 pages, illustrated. 12mo. Cloth, $1.00.

A sad commentary yet true is this travesty portrayed in a little volume which will furnish not only a half hour's enjoyment and relaxation but will afford the reader a real good laugh unless of course one's sense of humor has grown dour.

To the initiated it may not prove so funny. We trust that the author has not pricked your conscience.

If one looks at this story seriously, however, he is reminded once again that tonsillectomy is a major operation, especially to the patient, who is indeed entitled to a complete check-up before tonsillectomy.

SAMUEL ZWERLING.

News and Notes

Dr. William Seaman Bainbridge Decorated

Dr. William Seaman Bainbridge has been decorated by the Governments of Spain and Yugoslavia for his work in the late war—Cross of the Order of Naval Merit of Spain and Commander Order of the Crown of Yugoslavia. In recognition of his scholastic and scientific attainments he has been made Honorary Member of the Union Medicale Latine, composed of thirty-one nations, under the patronage of the President of France and the Minister of Foreign Affairs of that country.

Colonic Irrigation

FRANK HAMMOND KRUSEN, Rochester, Minn. (*Journal A. M. A.*, Jan. 11, 1936), defines colonic irrigation as lavage of the large intestine. Colonic irrigation is not to be considered as a massive enema but as a lavage of the colon above the area of defecation, administered under low pressure so that the defecation reflex is not stimulated.

The most recent view of rheumatoid arthritis is that it is due to a chronic infection of unknown origin and that focal infection and gastro-intestinal disturbances are not the real causes.